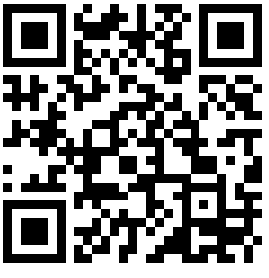
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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 30 September 1977

THE MECHANIZED INFANTRY PLATOON/SQUAD

PREFACE

PURPOSE. This **field manual** tells how to train mechanized infantry platoons and squads and how to **fight.** It provides the tools needed by the platoon and squad leader to maximize his combat power, minimize his vulnerabilities, and prepare his unit to win, **starting with the very first battle of the next war.**

SCOPE. This manual is designed for the leader **and members of** mechanized infantry platoons.

Because weapons, equipment, and organizations are continually being improved, specific organizations and types of equipment are not always given. Users must adapt the information in this manual to fit their specific situation.

The word "he" is intended to include both male and female gender. Any exceptions to this will be so noted.

RECOMMENDED CHANGES. You are encouraged to recommend improvements in this publication. Key your comments to a specific page, paragraph, and line of the text, and provide reasons for each comment to insure that we can understand and evaluate your recommendations. **Use DA Form 2028 (Recommended Changes to Publications)** in preparing your comments and send the form direct to: Commandant, United States Army Infantry School, ATTN: ATSH-I-V-TDMD, Fort Benning, GA 31905.

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*This publication supersedes TC 7-4, 28 February 1975, and TC 7-50, 30 April 1975.

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INTRODUCTION

WINNING THE FIRST BATTLE OF THE NEXT WAR

The outcome of the next war may be decided in the first few days--starting with the very first battle. During this and all subsequent battles, the mission of the mechanized infantry is to FIND THE ENEMY and DESTROY HIM or STOP HIS ASSAULT.

Whether you lead a platoon or a squad, it must be prepared to fight and win from the moment it goes into combat. This demands that you and your platoon or squad learn HOW TO FIGHT now--before the battle starts. This challenge can be met if the tactics and techniques described in this manual are mastered.

MECHANIZED INFANTRY IN MODERN BATTLE

Mechanized infantry is organized and equipped for mobile warfare. Its operations in both the offense and defense are characterized by rapid changes in location and by rapidly changing from fighting mounted to fighting dismounted. Armored personnel carriers (APCs) are the heart of the mechanized infantry and must be exploited whenever possible if you are to be successful in a fast-moving battle. Carriers provide the mobility, protection, and firepower needed to fight as an equal partner in the tank-infantry team. This team is ideally suited for the modern battlefield. The

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tanks destroy enemy armor while the mechanized infantry destroys the enemy's infantry and antitank defenses. Organic antitank guided missiles (ATGMs) give mechanized infantry a superb ability to destroy enemy armor.

Mechanized infantry normally fights with tanks and, if the situation permits, will fight mounted in APCs. When forced to fight dismounted, it will, whenever possible, be supported by fire from weapons on board the carriers. When the terrain is not suitable for tracked vehicles or visibility is severely restricted, mechanized infantry may have to fight dismounted without the support of its carriers.

Your platoon or squad has one of the most demanding roles on the battlefield. It must employ a wide variety of weapon systems in all types of operations. Additionally, it must have expertise in a great range of tactics and techniques which other arms do not have but which is essential to the success of the combined arms team.

LEADERSHIP

Platoon and squad leaders are responsible for the discipline, training, welfare, morale, control, and tactical employment of their units and the combat readiness of their weapons and equipment. This manual is intended to help you meet your responsibilities in the training and tactical employment of your platoon and squad.

Because they must be prepared to fight anywhere, under any conditions, your men need to be the toughest soldiers in the Army. Great demands are placed on their physical stamina, discipline, and resourcefulness. No other forces share their hardships--nor can they match the infantry's unique adaptability to any battlefield. Your job is to SET THE EXAMPLE. If you demonstrate mental and physical toughness as well as technical and tactical proficiency, you can expect your men to follow you and get the job done in any situation.

THE PLATOON LEADER

As the leader of a mechanized infantry platoon, you must attain a level of competence that is unmatched in history. Not only must you know how to train and employ the platoon both mounted and dismounted, you must also know how the platoon interacts with the other members of the combined arms team and how each member of the team contributes to winning the battle. This means that in addition to knowing what your platoon can and cannot do, you must know the capabilities and limitations of tanks, TOWs, attack helicopters, USAF aircraft, artillery, and engineers.

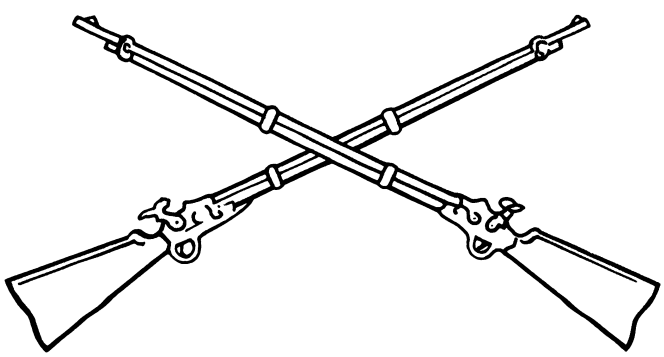
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Equally as important as understanding how US forces are employed is an understanding of how threat forces fight. You must know how the threat operates, how he is organized, and how he is equipped. Understanding the capabilities of the enemy allows you to identify his weaknesses and maximize your strengths.

As you train and when you fight, keep in mind that even if your platoon is tactically proficient it will be successful only if you make sure that your men and equipment are taken care of properly. It is your responsibility to insure that each soldier's personal needs are met, that he has the equipment to do the job you tell him to do, and that his weapons and equipment are in good working order.

THE SQUAD LEADER

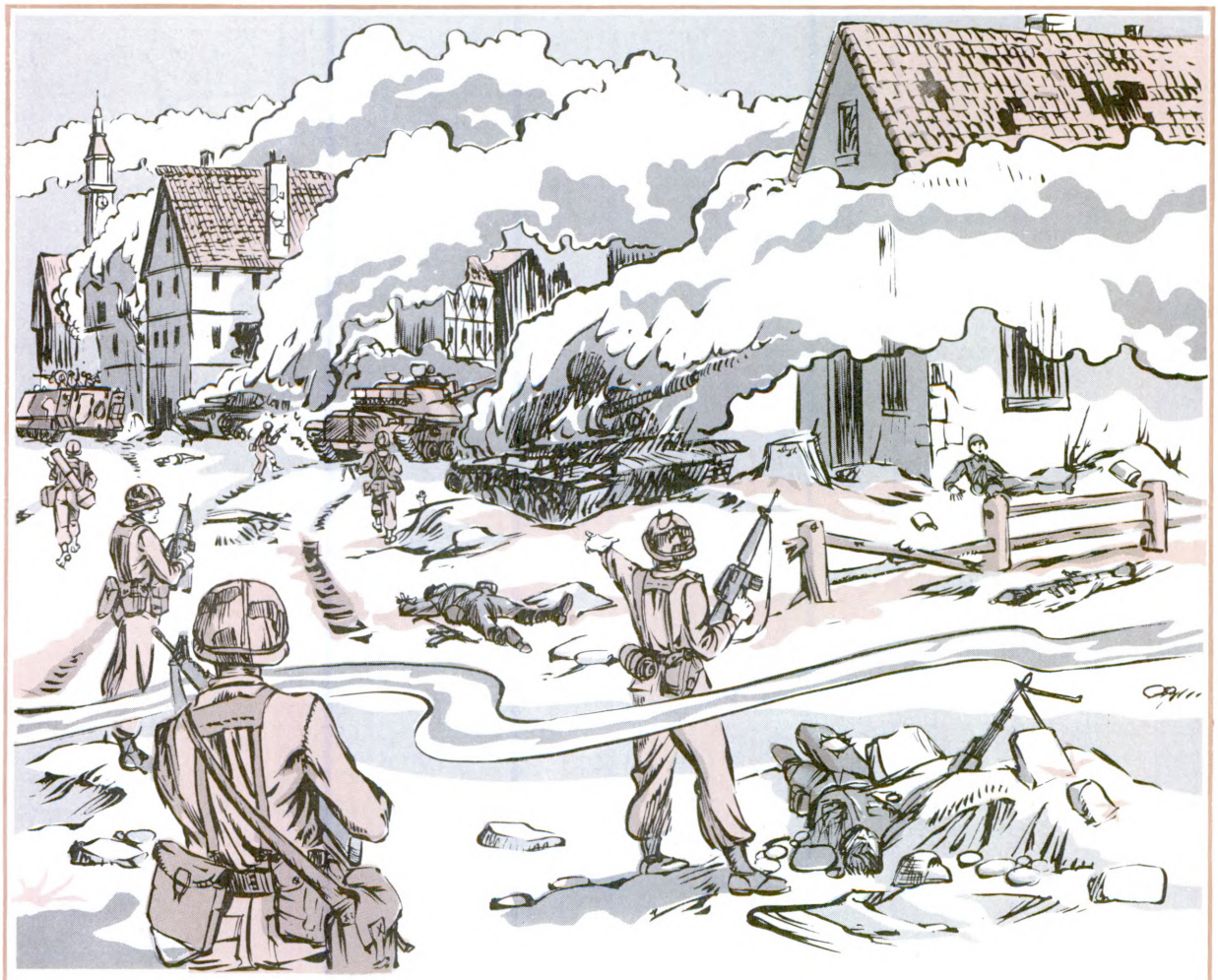
The squad must be prepared to fight successfully in all types of terrain from desert to frozen tundra and under all conditions of visibility and weather. The success of the squad's mission depends on the effectiveness of the soldiers of the rifle squad. Their effectiveness is determined by how well they are led. As the squad leader, you have this challenging and difficult responsibility.



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CHAPTER 1
THE BATTLEFIELD



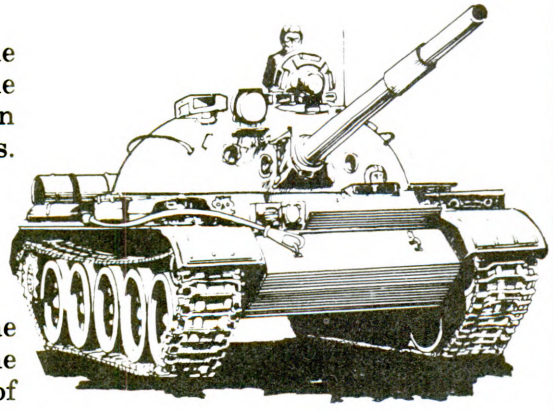
Modern warfare is fast-moving and deadly. The enemy which you will face is sophisticated and well-armed. His soldiers are tough, callous, and trained to endure hardship. They are convinced that they are righteously defending their country or its allies against aggression. They are given realistic field training. In this training, the enemy soldier learns how to live and survive in the field in any weather and under conditions closely simulating combat. His platoons are mostly armored and mechanized, and they fight as part of a combined arms team supported by massed artillery fire.

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Section I.
OPPOSING FORCES

WEAPONS--MODERN AND EFFECTIVE

Because the opposing force believes in the power of offensive armored warfare, the organization of his ground forces is based on tanks and armored infantry combat vehicles.



T-62.

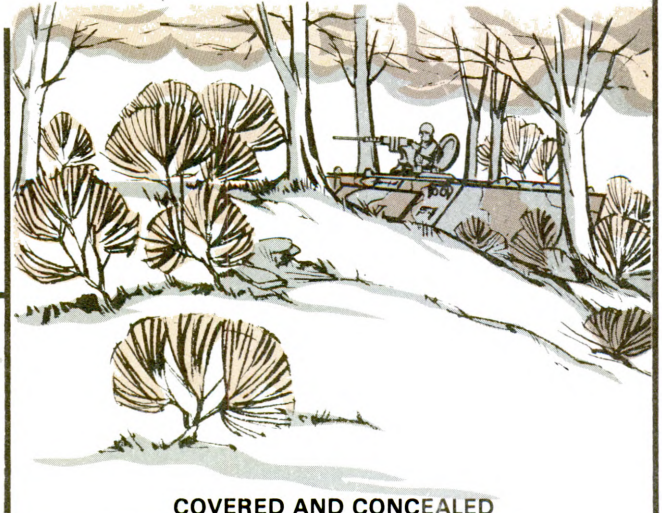
The T-62 is the principal tank of the opposing force. At 1500 meters (about one mile) the T-62's gunner has a 50/50 chance of hitting your carrier with his first round if you are exposed and sitting still. If your carrier is moving, but exposed, there is still a 50/50 chance that he will hit you at ranges over 1000 meters. If he hits your carrier or fighting position, it is almost certain that his 115-mm main gun round will kill you. However, if your APC is in a good covered and concealed position, he has little chance of knocking your vehicle out. Similarly, if your carrier gunner and fighting positions are carefully concealed, he has little chance of finding and engaging you.



STANDING STILL, EXPOSED
50/50 AT 1500 METERS



MOVING 12 MPH
50/50 AT 1100 METERS

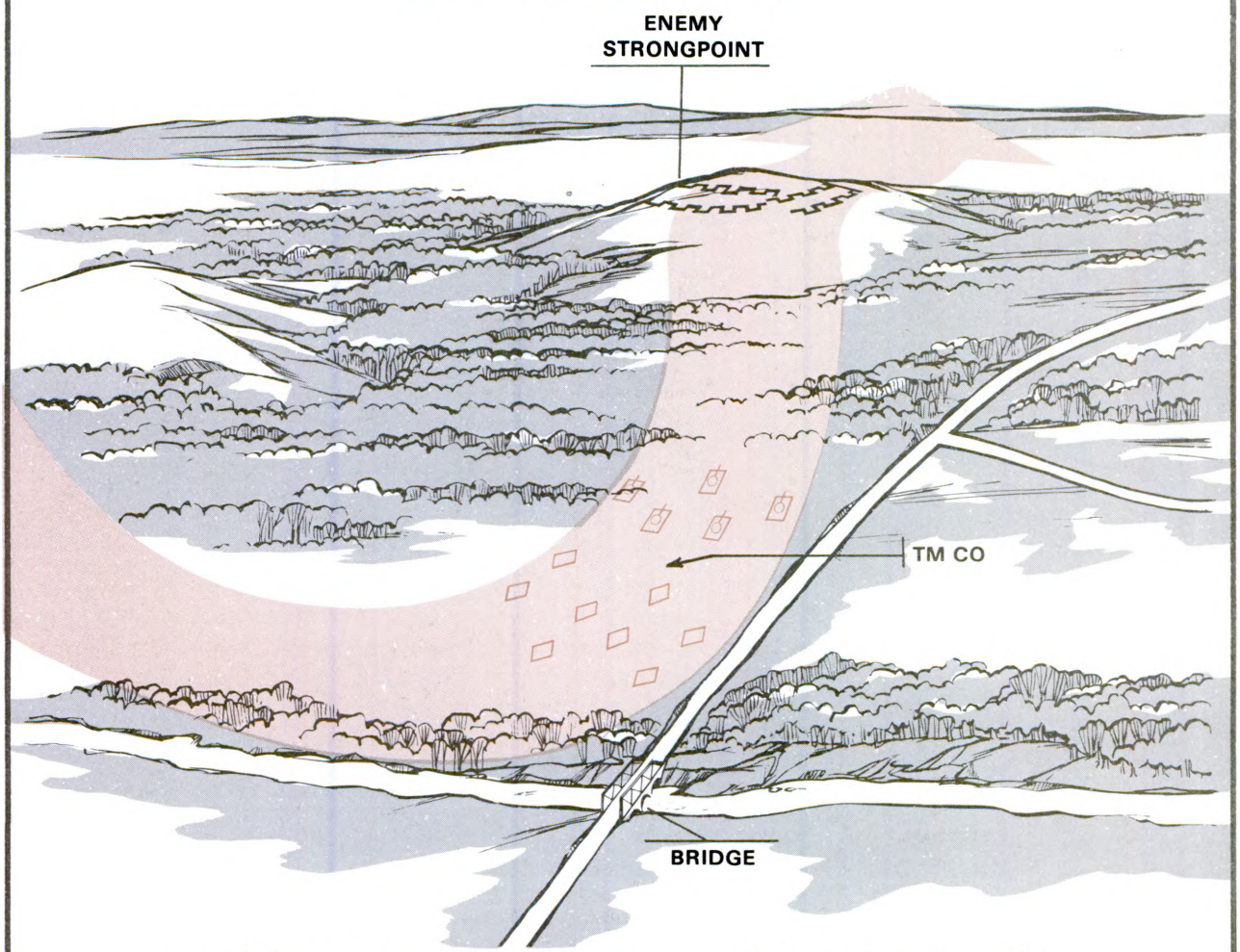


COVERED AND CONCEALED
ALMOST NO CHANCE

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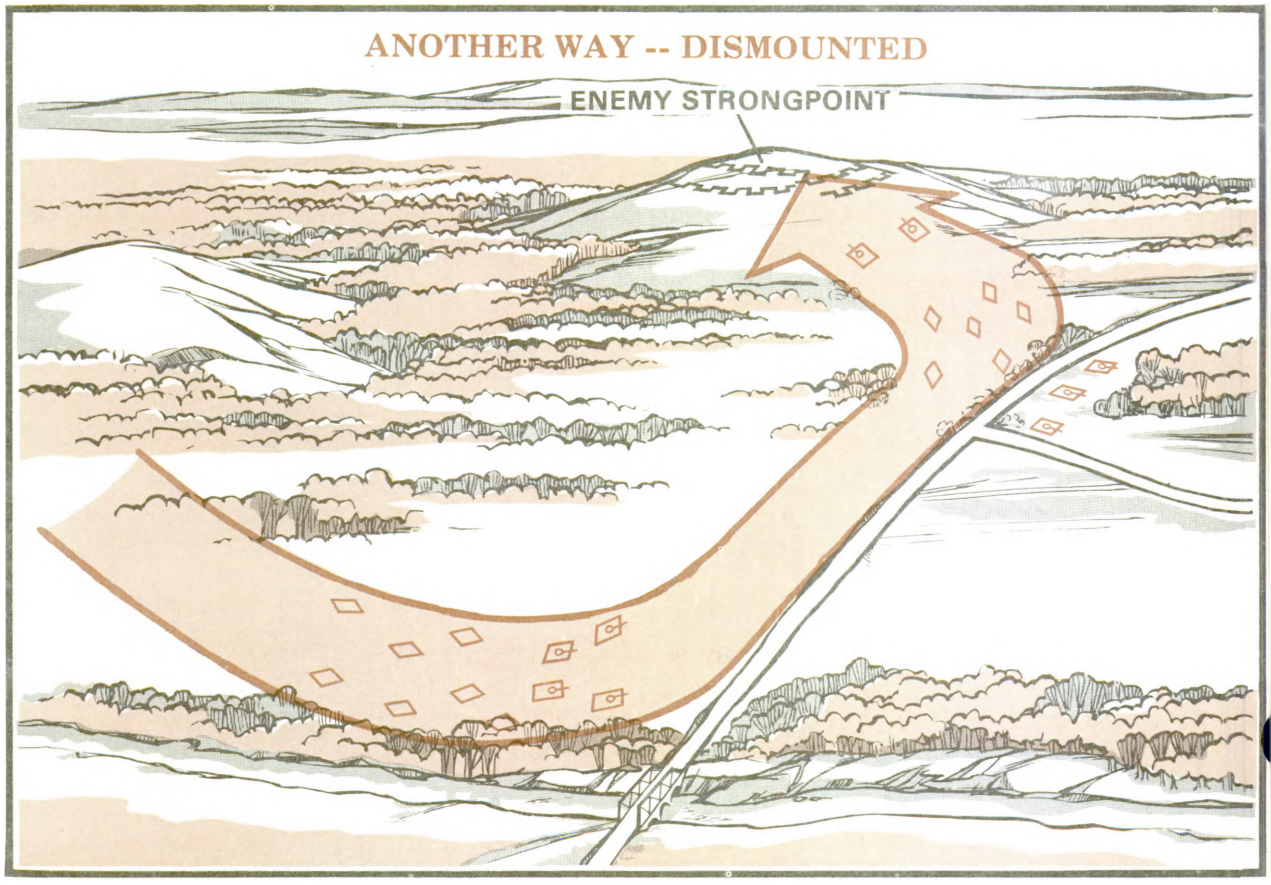
Fog, rain, snow, and smoke will seldom be so restrictive as to prevent effective control at least as high as platoon level. However, just as these conditions preclude your use of overwatching fires, they also prevent the enemy from engaging you at long range. With reduced engagement ranges, your company team commander will attempt to assault his objective with speed and mass, employing his tank and infantry platoons on successive lines spaced close enough to maintain visual contact as shown below:

ATTACKING IN FOG
ONE WAY -- MOUNTED



A mech heavy team is attacking two entrenched squads in fog which limits visibility to 75 meters. They approach the objective in 3 columns with about 50 meters between vehicles, guiding on the stream. When the lead vehicles reach the road, all vehicles pivot to the left, and the objective is overrun mounted. When the north side of the trenches is reached, the 2 infantry platoons dismount and each clears a half of the trench system.

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In this situation the team commander decides that the 25 meter visibility in the fog is not enough to control his 14 vehicles in a mounted assault of the objective. His concept is to assault the trenches dismounted at a point in the rear where he expects the enemy to be weakest. The team will approach the objective in two columns, guiding on the stream and the road. When they reach the road junction, the heavy tank section will pivot to the right to protect against possible enemy reinforcement. The light section will pivot to the left and begin to inch forward, followed by the 2 infantry platoons which dismounted behind them. When the two tanks reach a point where they can just see the trenches, they will put out a heavy volume of suppressive fire, while the 1st Platoon penetrates and begins to clear clockwise. The 2d Platoon follows and clears counterclockwise. The 2d Platoon will halt at a connecting trench just short of half way around to preclude a meeting engagement with the 1st Platoon.

In this situation the team commander had to forfeit the firepower of his carrier elements. Visibility was too restricted to effectively control their fires. For them to be employed, they would have had to inch forward to within 25 meters of the trench, presenting stationary, short range targets to dug-in AT gunners.

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CHAPTER 5
THE DEFENSE

Section I.
GENERAL

For a mechanized platoon, the main purpose of defense operations is to repel an enemy attack and to destroy the attacker. Defense operations may also be undertaken to hold critical terrain, to gain time, to wear down the enemy, or for other such reasons. The mechanized infantry platoon defends by accomplishing tasks and missions assigned to it by the team commander.

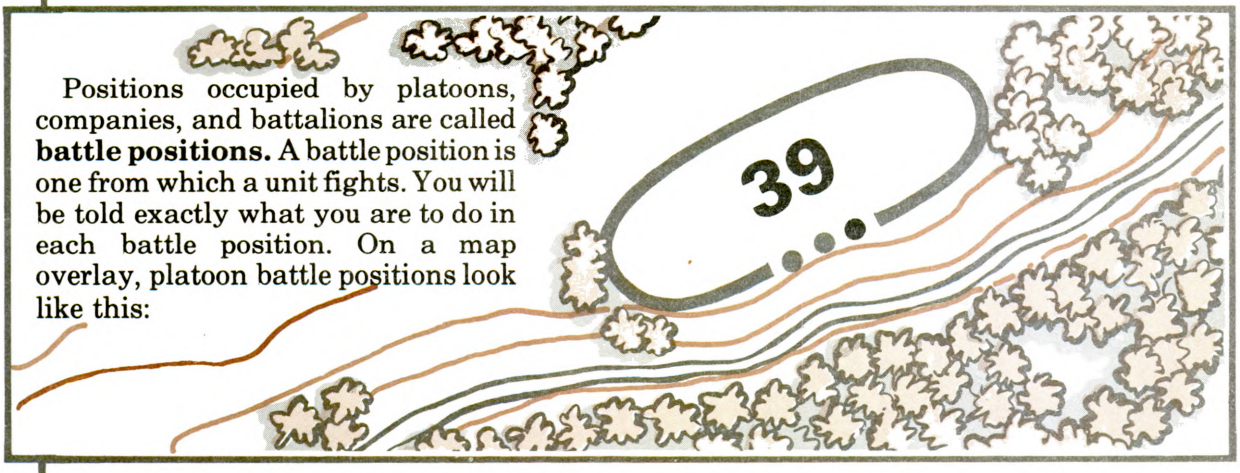
In defense, mechanized infantry habitually fights as a member of a tank-infantry team. The team consists of infantry, TOWs, and tanks. It is supported by artillery and engineers. **This team fights an active defense.** The intent of an active defense is to destroy the enemy in the initial encounter if possible. If the enemy is not defeated in the initial encounter, then he is defeated by confronting him time and time again from positions in depth throughout the battle area. Defending platoons, company teams, and task forces maximize the effectiveness of their weapons and minimize their vulnerability by selection of positions and use of cover, concealment, and obstacles. TOWs are sited to exploit their long range and pinpoint accuracy. Tanks are sited to exploit their mobility, their lethal main armament with its high rate of fire, and their protection. The fire of tanks and TOWs is primarily used to destroy enemy armor. Infantry platoons participate in the battle by:

- destroying the enemy in designated sectors of fire with Dragon and machinegun fire, supplementing the fire of TOWs and tanks.
- repelling mounted attacks on avenues of approach that cannot be adequately covered with TOW and tank fire.
- repelling dismounted attacks.
- protecting TOWs and tanks from enemy infantry, especially when visibility is limited.
- locating the enemy or screening areas through the use of Ops, LPs, patrols, and ambushes.

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- constructing obstacles to slow, stop, or canalize the enemy, and covering them with fire.
- preparing and fighting from strongpoints, as part of a larger force.

Positions occupied by platoons, companies, and battalions are called **battle positions.** A battle position is one from which a unit fights. You will be told exactly what you are to do in each battle position. On a map overlay, platoon battle positions look like this:



They are usually numbered and referred to by that number. For example, the battle position shown above is called, "battle position 39."

An active defense involves fast and frequent movement from battle position to battle position. Mechanized infantry, on moving into a battle position, must be able to defend it, shoot into an assigned area from it, or perform security missions around it within minutes of its arrival. To do this, mechanized infantry platoons must--

- exploit the mobility and firepower of the APC.
- have good SOPs so that occupation of a position triggers a series of automatic actions by the squads.

This chapter tells how mechanized infantry squads and platoons destroy enemy in designated sectors of fire, repel enemy assaults, screen areas, withdraw, protect tanks and TOWs, and set up roadblocks.

In order to understand defense tactics and techniques, you must first know how the enemy will attack.

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Section II.
HOW THE ENEMY ATTACKS

Enemy doctrine stresses the offense as the main element of combat action and views the defense as an element of combat which is at times necesary, but always temporary in nature. The concentrations of numerically superior forces and firepower for a combination of frontal attacks, enveloping maneuvers, and deep offensive thrusts into the enemy rear by armor-heavy combined arms forces are the conceptual aims of the offense. This doctrine is designed to support rapid and vigorous offensive action that visualizes advancing 30-50 kilometers a day in a conventional environment and up to 100 kilometers in a nuclear environment.

COMBINED ARMS

According to enemy doctrine, successful combat operations depend on the integrated employment of all branches and services to form a combined arms force. The basic units for sustained operations are the motorized rifle and tank divisions. Units below these levels are rarely employed without reinforcements or attachments.

ECHELONS AND RESERVES

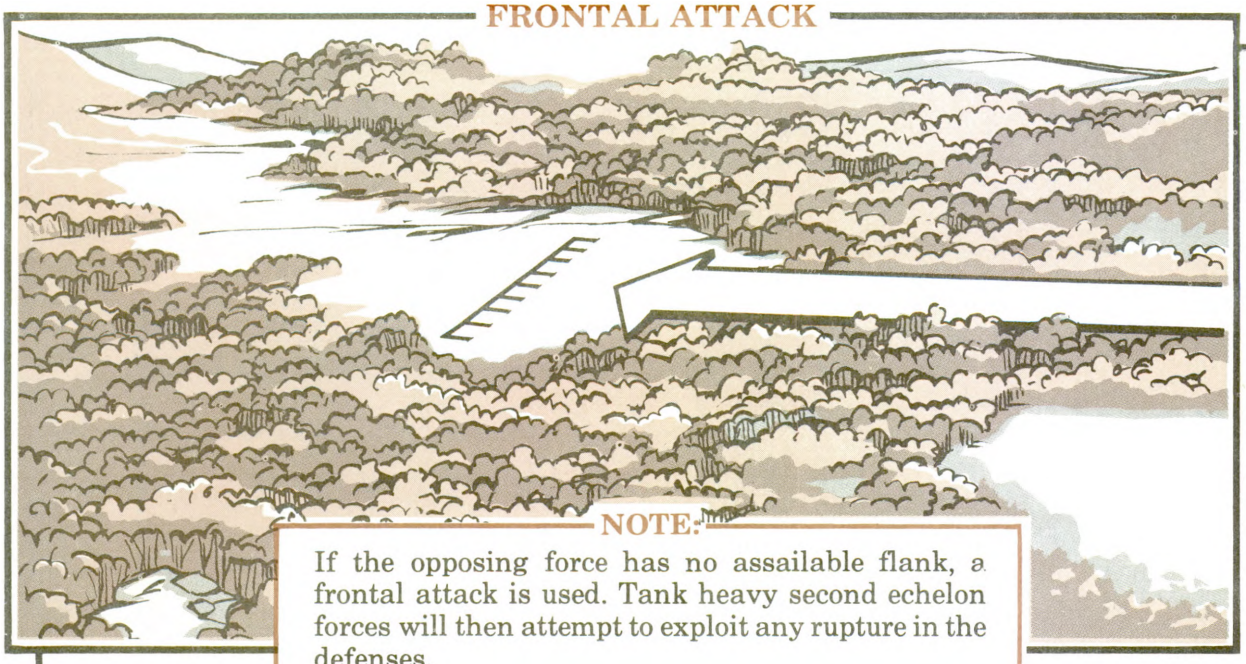
In the offense, the enemy commander normally employs his forces in a first and second echelon, with each assigned specific missions. The first echelon is the assault unit, which attempts to rupture and pass through enemy defenses. The second echelon is a follow-on element used to defeat bypassed defending units and to continue or maintain the momentum of the attack. In addition to echelonment, each command level may maintain a small reserve for contingency purposes.

MANEUVER

Enemy forces emphasize two basic forms of maneuver, the frontal attack and the envelopment, but favor the latter, which may be shallow or deep depending on the size of the unit executing it.

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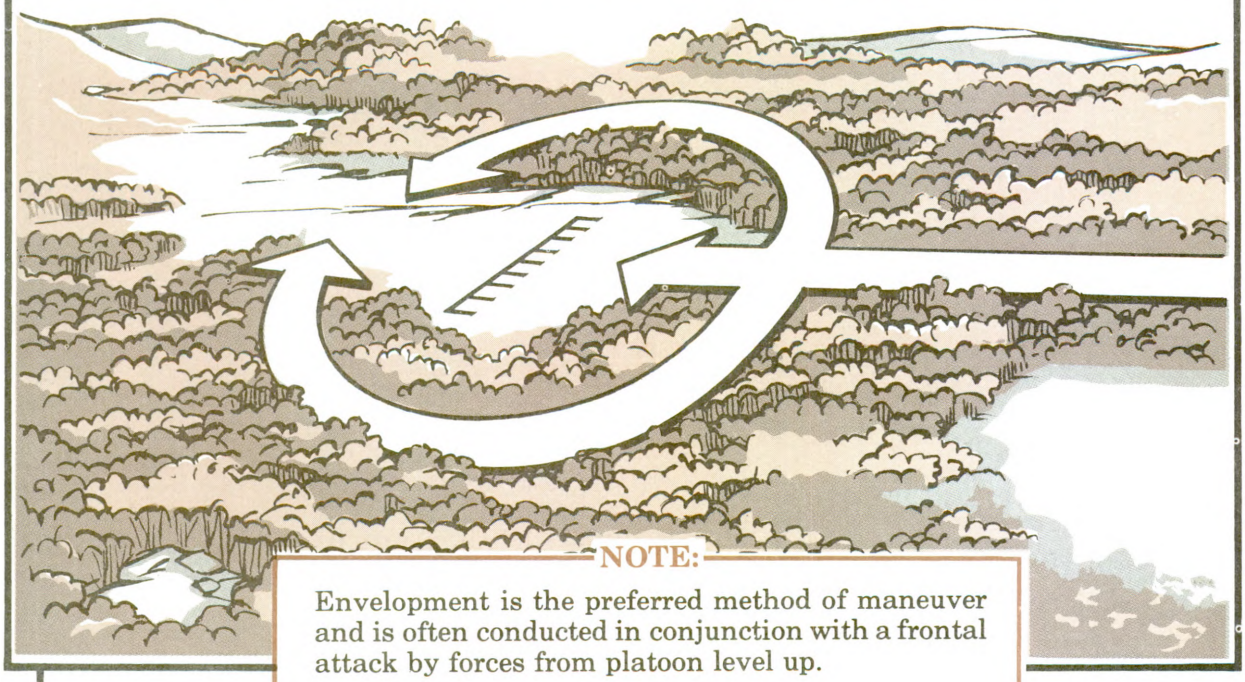
FRONTAL ATTACK



NOTE:

If the opposing force has no assailable flank, a frontal attack is used. Tank heavy second echelon forces will then attempt to exploit any rupture in the defenses.

DOUBLE ENVELOPMENT WITH FRONTAL ATTACK



NOTE:

Envelopment is the preferred method of maneuver and is often conducted in conjunction with a frontal attack by forces from platoon level up.

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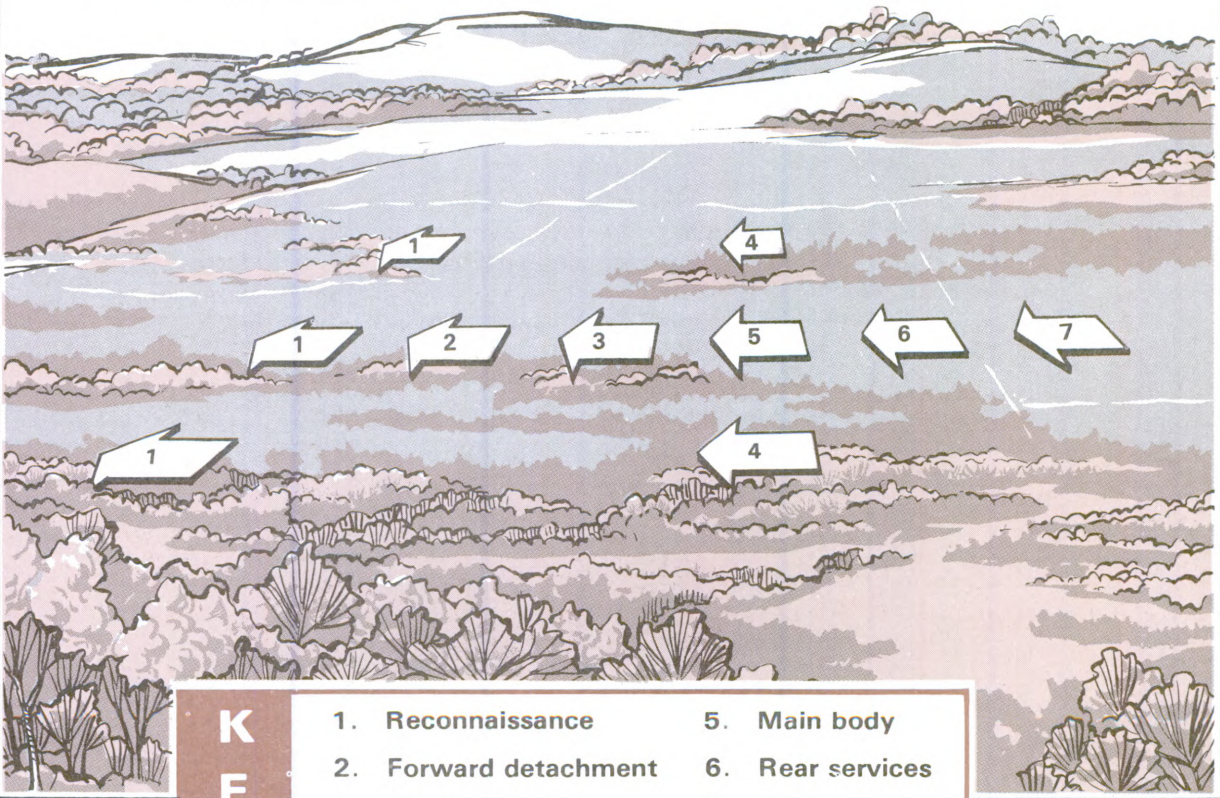
OFFENSIVE ACTIONS

The enemy recognizes three basic forms of offensive actions: the meeting engagement, which includes advance to contact and hasty attack; the deliberate attack, or breakthrough; and the pursuit (exploitation).

ADVANCE TO CONTACT

BASIC ORDER OF MARCH IN THE ADVANCE TO CONTACT

Enemy forces normally advance to contact in column formation with all-round security. This type of formation is used to insure high speed, rapid combat deployment, and control.



KEY

1. Reconnaissance
2. Forward detachment
3. Advance guard
4. Flank security
5. Main body
6. Rear services
7. Rear security

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In an advance to contact, a motorized rifle company may be reinforced with armor, artillery, air defense, engineer, and chemical units and assigned any of the following missions:

- Advance guard of a motorized rifle battalion.
- Forward detachment for a motorized rifle regiment.
- Flank security or rear guard for the main body.
- A combat element of the main body.
- Constitute reconnaissance groups to augment reconnaissance units at regiment and division level.

The mission of reconnaissance groups is to locate the flanks and weak areas of the defender so that the main body can quickly bypass pockets of resistance and continue the advance.

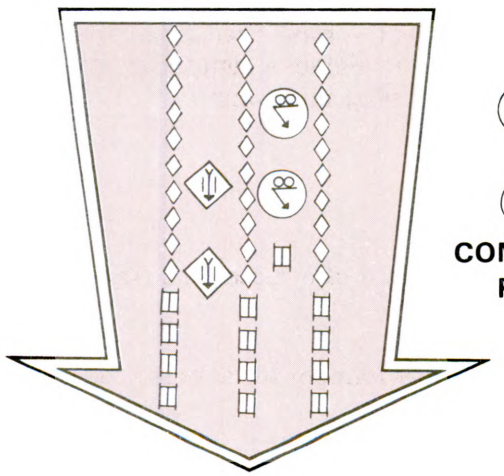
The role of the advance guard is to develop the situation and overcome light opposition. If unable to overcome or bypass opposition, the advance guard will cover the deployment of the main body for an attack.

Enemy forces in the advance to contact normally move in a column formation to support their high speed advance doctrine. Deployment into various combat formations is conducted by successive advancing elements only to the extent necessary to overcome enemy defensive positions.

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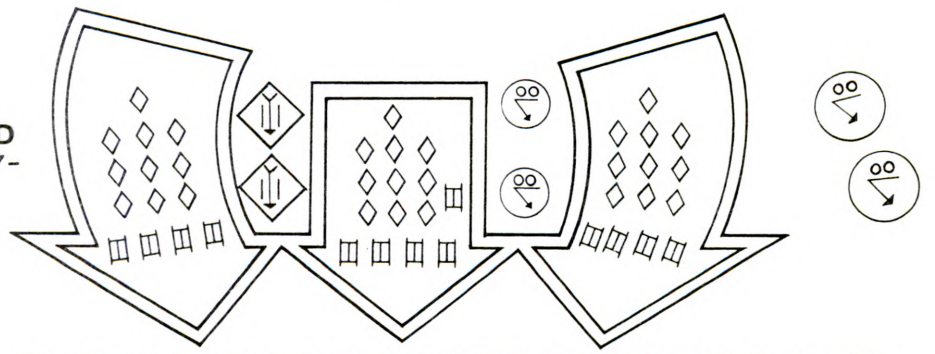
BATTALION DEPLOYS INTO COMPANY COLUMNS 4 - 6 km FROM LINE OF CONTACT

NOTE:
SP ARTILLERY WILL NORMALLY SUPPORT A BATTALION IN THE ATTACK.



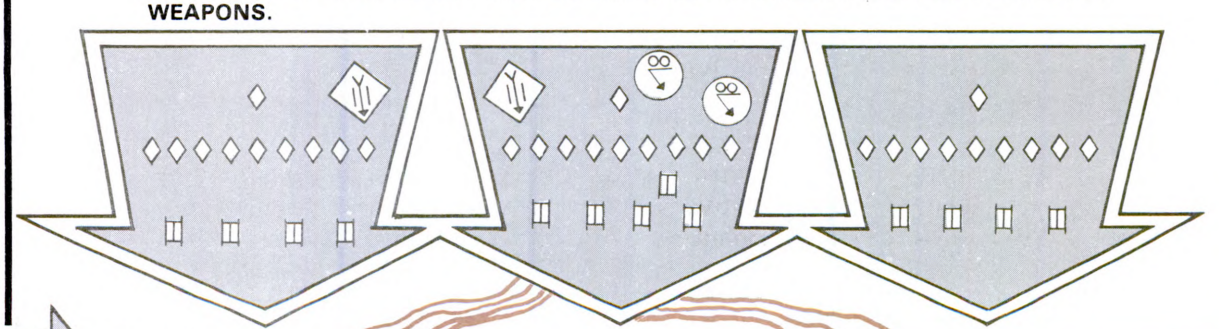
COMPANY DEPLOYS INTO PLATOON COLUMNS 1 - 3 km FROM LINE OF CONTACT

INITIAL DEPLOYMENT



SECOND DEPLOY-MENT

BATTALION NORMALLY ATTEMPTS TO DEPLOY INTO BATTLE FORMATION 1 km OR LESS FROM LINE OF CONTACT. MAINTAINING MOVEMENT IN COLUMNS INCREASES SPEED OF ADVANCE. SP ARTILLERY MAY BE EMPLOYED IN DIRECT FIRE ROLE AGAINST AT WEAPONS.



FINAL DEPLOYMENT

1 km OR LESS

OBJECTIVE

◇ = BMP

◇ = ZSU 23-4

⊟ = MEDIUM TANK

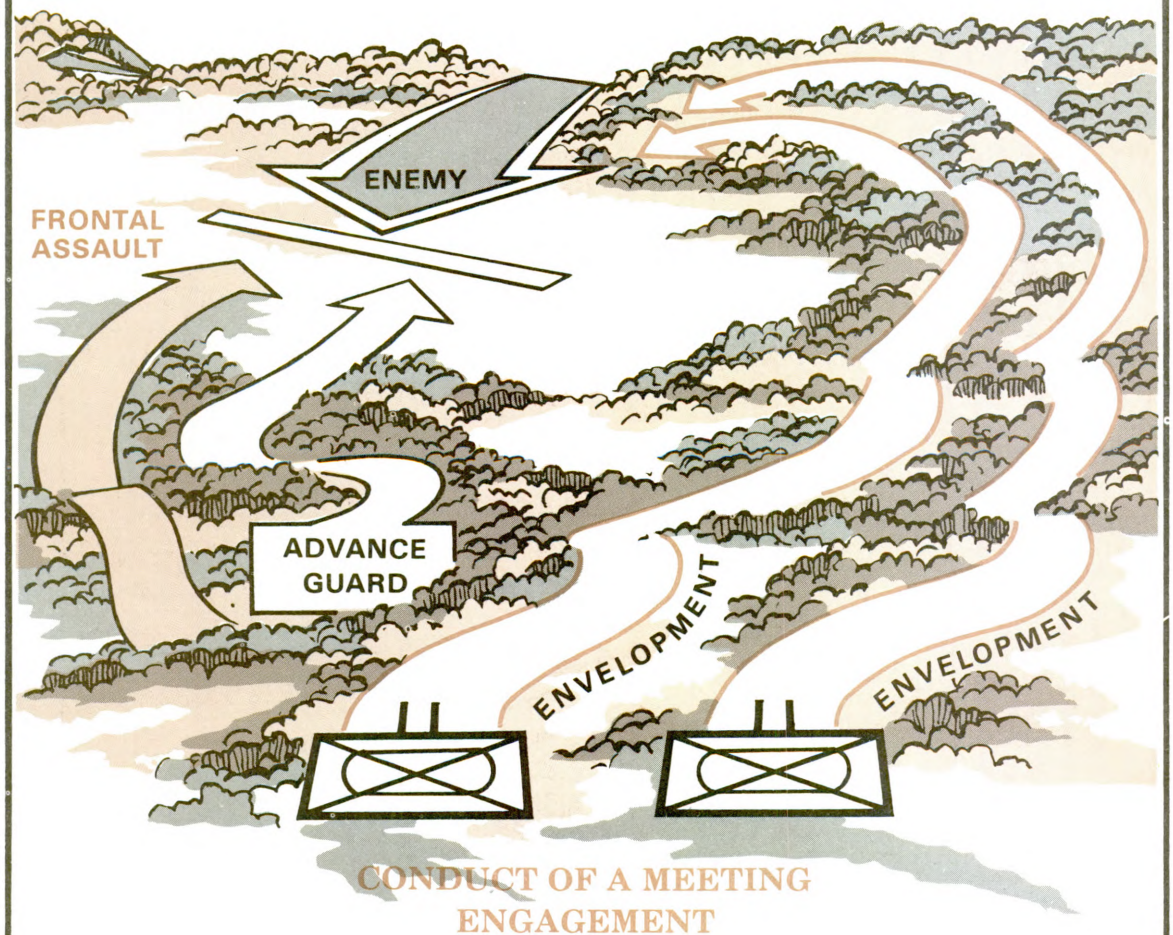
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DEPLOYMENT INTO BATTLE FORMATION (MOTORIZED RIFLE BATTALION)

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THE MEETING ENGAGEMENT

Meeting engagements, according to enemy doctrine, normally follow an advance to contact, with initial actions carried out by security and reconnaissance elements. This form of offense is characterized by action to seize and maintain the initiative; the development of combat on a wide front with freedom of maneuver and the presence of open flanks; rapid deployment of troops in mobile and high speed combat; and, often, incomplete intelligence on defending forces. These actions are followed by intense ground and heliborne reconnaissance and maneuvering in search of gaps or weak points. The attack is carried out immediately from the line of march and may consist of a frontal assault, envelopment maneuver to the flank or rear, or a combination of both.



CONDUCT OF A MEETING ENGAGEMENT

Normally, the battalion is the smallest unit to conduct the meeting engagement. Only minor meeting engagements are fought by an independent motorized rifle company.

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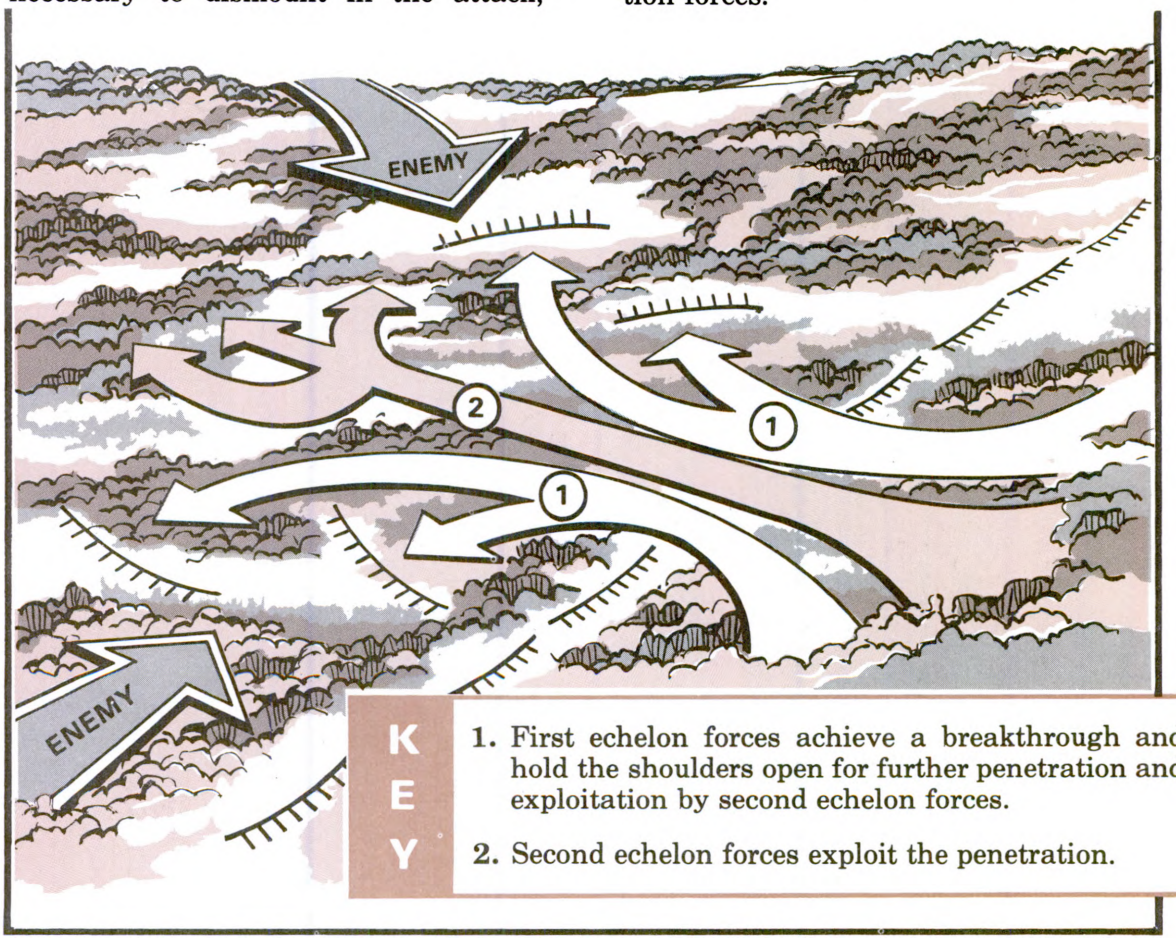
THE HASTY ATTACK

A hasty attack is often an extension of the meeting engagement. It is conducted when prepared positions are encountered and enemy forces have located an assailable flank or gap in the defenses.

During the course of the meeting engagement or hasty attack, a motorized rifle company attacks in line, usually behind an attached tank platoon and abreast of other motorized elements. Speed in the attack is stressed. Riflemen remain mounted, when feasible, and fight from their carriers. Defending forces are destroyed or bypassed and mopped up by second echelon forces. If it is necessary to dismount in the attack, riflemen move behind the attached tanks and are supported by their APC. If superior defending forces defeat or render an attack impossible, the enemy commander will strive to fix the defender for the deployment of following forces into a deliberate or breakthrough attack.

THE BREAKTHROUGH ATTACK

The deliberate, or breakthrough, attack has as its purpose the rupture of forward defenses to permit the passage of exploitation forces.

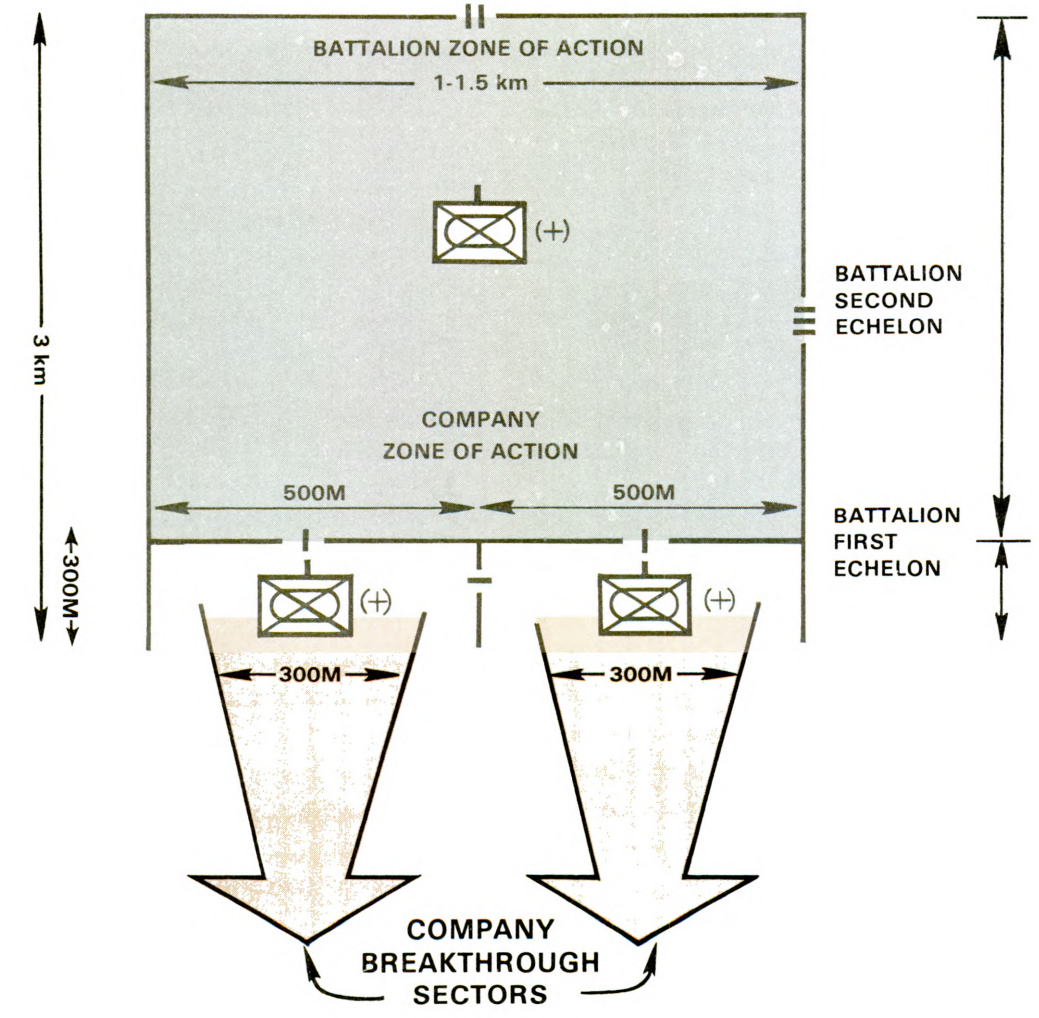


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The breakthrough operation is a frontal assault against well-prepared defense positions in which no gaps or assailable flanks can be found. The concept of the breakthrough operation is the concentration of maneuver elements on a narrow front supported by massive amounts of artillery. The enemy envisions the conduct of swift and deep envelopments, the bypassing of stubborn pockets of resistance, decisive meeting engagements with the defender's advancing reserves, continuation of the attack and the subsequent destruction of strongpoints by second echelon units.

An enemy battalion, as part of the division, concentrates its forces to achieve the desired combat ratios for the breakthrough against a prepared defense.

BATTALION BREAKTHROUGH



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The company's mission is expressed in terms of the destruction of a specific defending unit and/or the seizure of a ground objective or line. A company is assigned an immediate objective and a direction of further attack.

The depth of the company attack is determined by the type of weapons used (nuclear or nonnuclear) to neutralize the defenses, the operational concept, the composition and effectiveness of his own forces, terrain, and weather. The depth of the attack is usually greater under nuclear conditions.

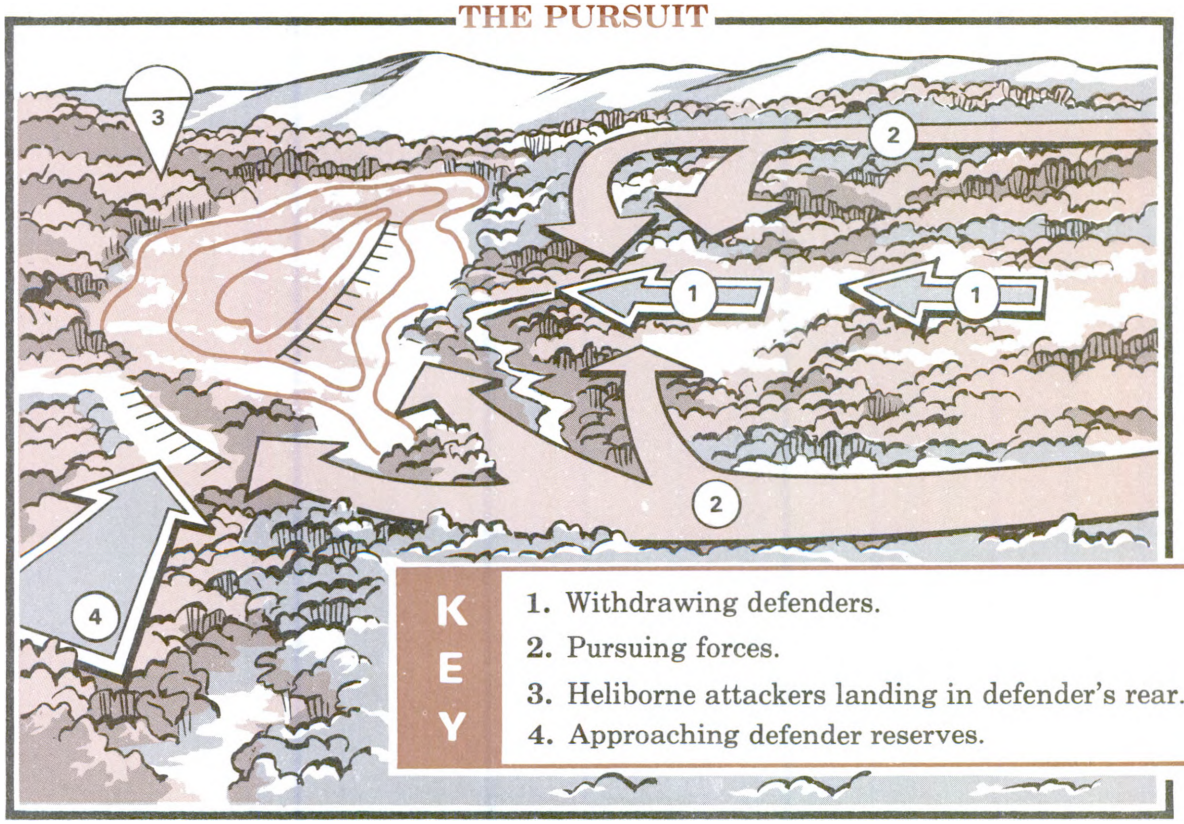
Allocation of supporting weapons to a battalion depends on the mission, the availability of supporting weapons, and the terrain. A motorized rifle battalion attacking in the first echelon of the regiment may be reinforced with up to one artillery battalion, one or two tank companies, and up to a platoon of combat engineers.

Companies attacking as part of the battalion's first echelon are more heavily reinforced than the second echelon (reserve) company. A company in the first echelon may be reinforced with an artillery battery, one or two tank platoons, a mortar platoon, and the battalion antitank platoon.

THE PURSUIT

An enemy pursuit is an offense operation intended to complete the destruction of the defender. Rather than follow a retreating defender, pursuing units move on routes parallel to his retreat attempting to outdistance him, cut the withdrawing columns into segments, and destroy them.

THE PURSUIT



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Helicopters will be employed to locate and engage retreating units and guide pursuing forces into contact. Airborne, airlanded, and airmobile forces will be used to control critical terrain and block or slow down the defender's withdrawal.

When the defender withdraws, the motorized rifle company starts pursuit operations. For more speed and momentum and to create better conditions for maneuver, the company forms into platoon columns and continues the pursuit in approach march formation.

If the defender organizes resistance by individual units on advantageous lines to cover his withdrawal, subunits bypass them to reach the flanks and rear of the main body, cutting off his route of withdrawal.

Planning for the pursuit is begun before the attack. Plans include consideration of possible withdrawal routes, composition of pursuit forces, and preparation of schemes of maneuver best suited to the situation. The pursuit is initiated at the first opportunity by regiments and higher units and is terminated only on orders by higher commanders. Orders to terminate the pursuit are issued where the defender has been completely destroyed; when pursuit forces have outdistanced their logistical support or are overextended and in danger of being cut-off; or, when the defender has succeeded in establishing a strong position.

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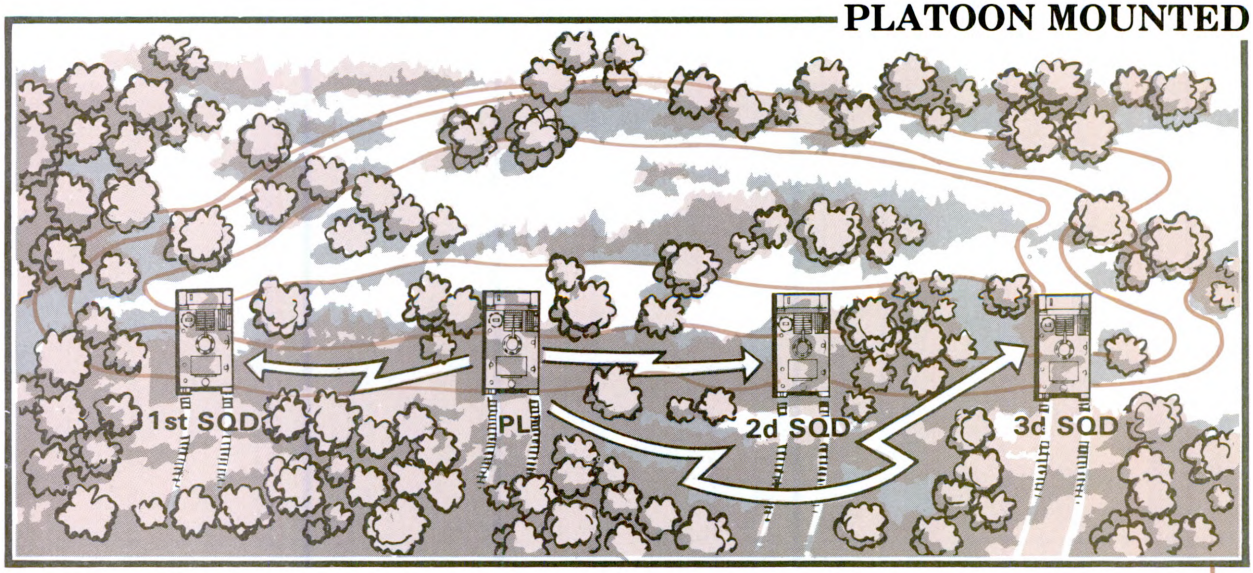
Section III.
US DEFENSE TACTICS AND TECHNIQUES

Having looked at how the enemy attacks, it is easy to see that in order to defeat him you must use your men and equipment wisely. Types of defense missions given to platoons are discussed in section IV of this chapter. This section tells leaders of squads and platoons how their units can be deployed and controlled for defense battles.

There are three ways a platoon can be deployed. Control of the carrier team/element and the maneuver team/element will be discussed for each method.

- Platoon mounted.
- Maneuver element and carrier element on same battle position.
  - Squad leaders control carrier teams.
  - Platoon leader controls carrier teams.
- Maneuver element and carrier element on separate battle positions.

PLATOON MOUNTED

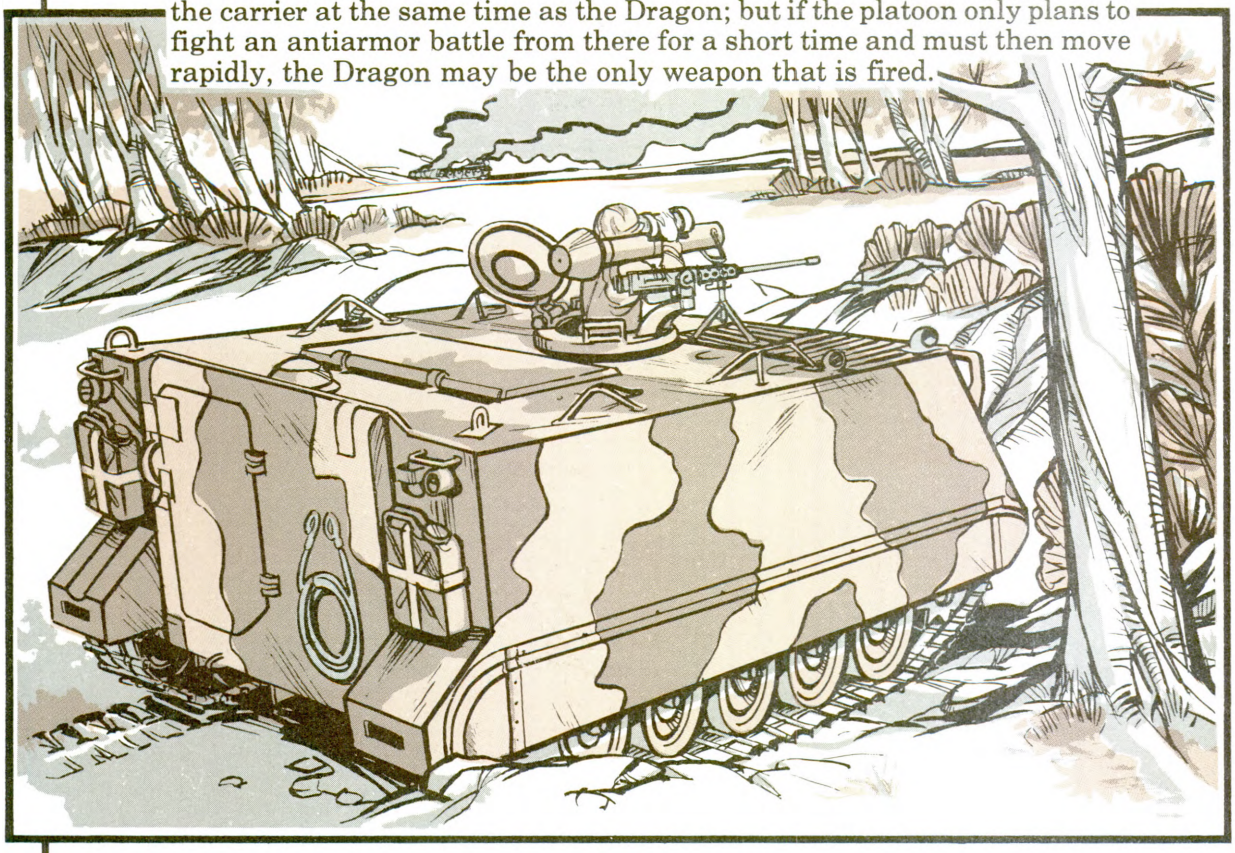


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This method may be used when a battle position is temporarily occupied and may have to be quickly relocated. It simplifies the platoon leader's control of the platoon and improves the platoon's ability to react and move fast. It is normally used when--

- enough firepower can be employed from the carrier.
- increased local security or observation is not needed.
- the platoon may have to move on such short notice that having dismounted men would not allow the squad to move fast enough.

The major disadvantage of this method is that the squads have less firepower than when some men and weapons are dismounted from the carriers. For example, in most cases you cannot fire any other weapon from the carrier at the same time as the Dragon; but if the platoon only plans to fight an antiarmor battle from there for a short time and must then move rapidly, the Dragon may be the only weapon that is fired.



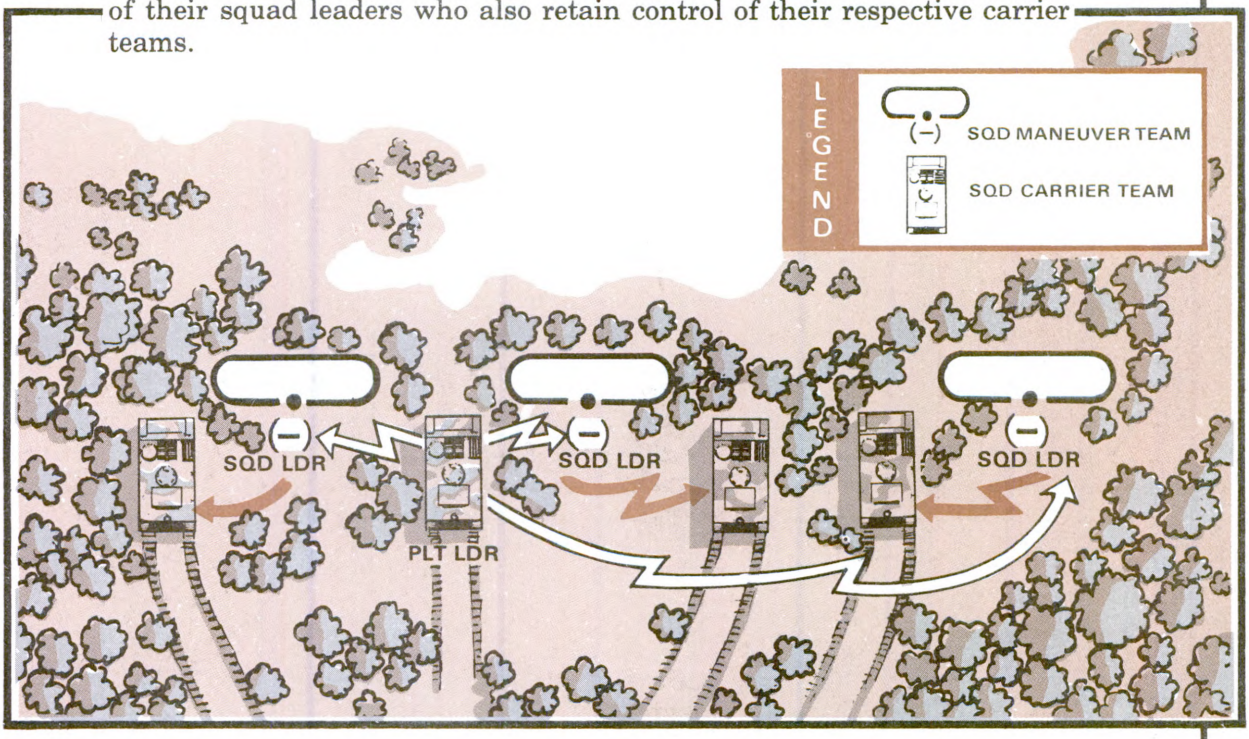
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MANEUVER ELEMENT AND CARRIER ELEMENT ON SAME BATTLE POSITION

A platoon has a maneuver element and a carrier element whenever one or more squad maneuver teams dismount (chap 3). When the maneuver element and carrier element are deployed on the same battle position, there are two ways to control the carrier teams.

SQUAD LEADERS CONTROL THEIR OWN CARRIER TEAMS.

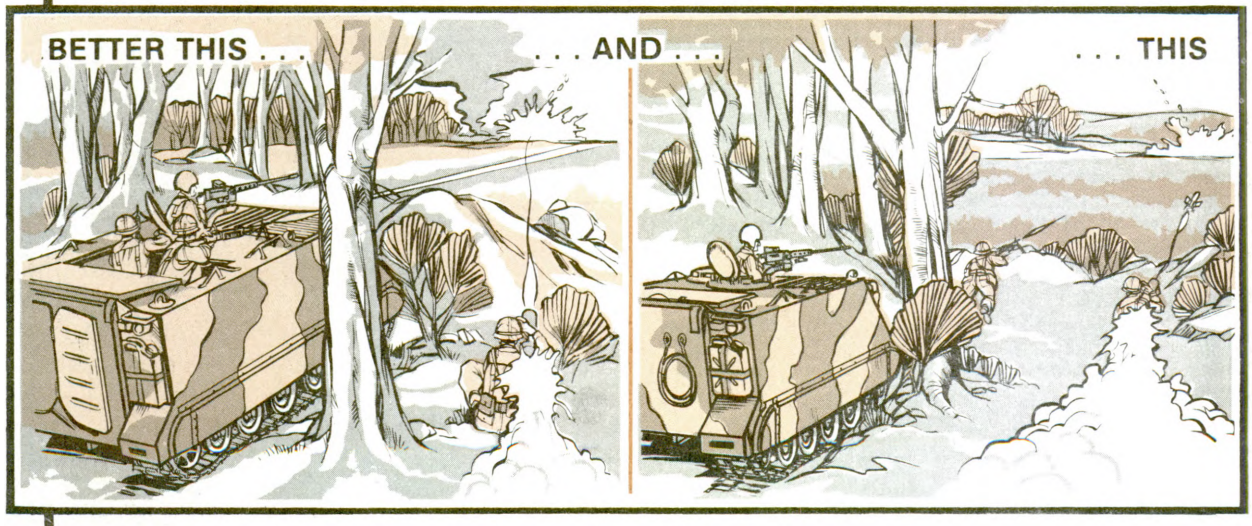
In this method, some or all of the maneuver teams dismount under control of their squad leaders who also retain control of their respective carrier teams.

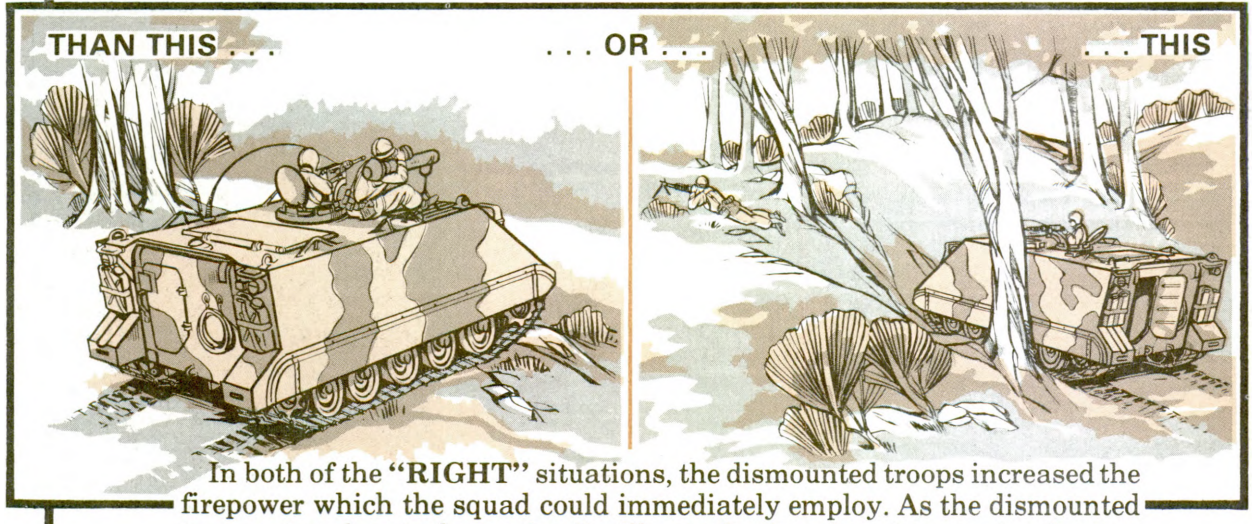


The diagram above shows that the platoon leader gives orders to the squad leaders who give instructions to their respective carrier teams. The diagram is not meant to illustrate exactly how the maneuver teams are positioned on the ground or where the leaders are located. Use this method when a platoon must temporarily occupy a battle position and be prepared to quickly relocate, but conditions do not allow the platoon to stay mounted. Some men from each squad dismount close to its carrier to increase their squad's fire, observation, and security. The squad leader decides how many men to dismount, depending on--

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- how much the firepower and observation must be increased to accomplish the squad's mission and to protect the APC (more men on the ground means more men able to shoot and to secure the APC).
- the squad's need to move quickly (generally the more men dismounted the longer it will take to remount the carrier and move).
- the cover and concealment available for the APC.





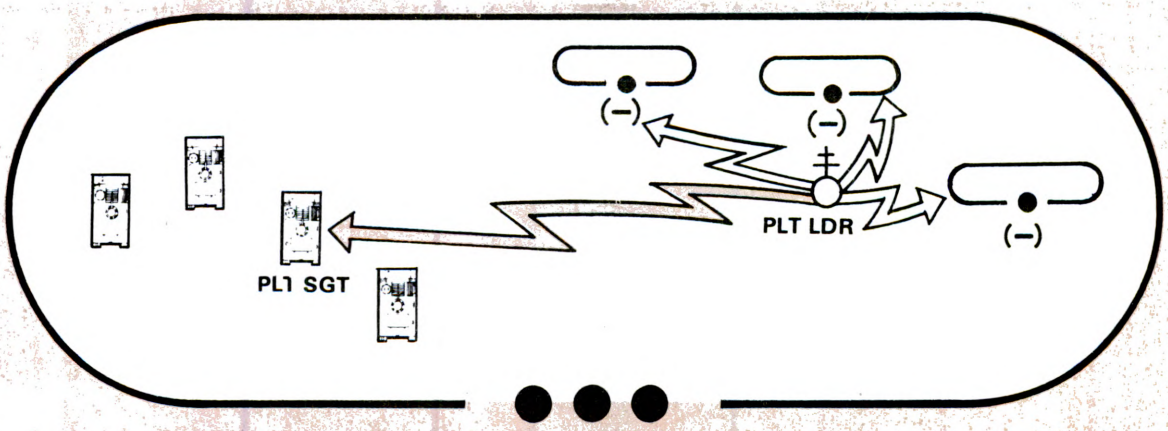
In both of the **"RIGHT"** situations, the dismounted troops increased the firepower which the squad could immediately employ. As the dismounted troops stay close to the carrier, it will not take them long to mount and move.

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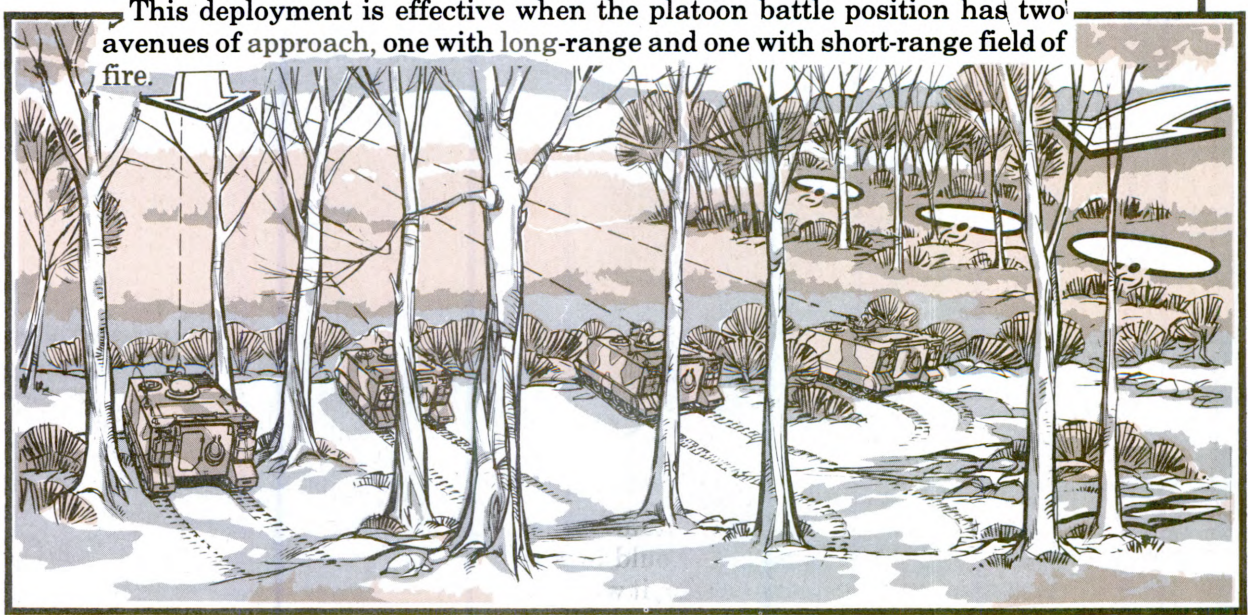
The squad leader may stay in the carrier or dismount--whichever best allows him to control the squad.

PLATOON LEADER CONTROLS CARRIER ELEMENT THROUGH AN NCO.

This method is used when the platoon must occupy a battle position and be prepared to repel an enemy attack. The maneuver teams dismount, form the maneuver element which is positioned a distance from the carrier element. The carrier element is controlled by the platoon leader through an NCO (**Plt SGT or Asst Plt SGT**). However, if the platoon leader feels that the carrier element has the more critical mission, he may locate with and personally control the carriers.



This deployment is effective when the platoon battle position has two avenues of approach, one with long-range and one with short-range field of fire.



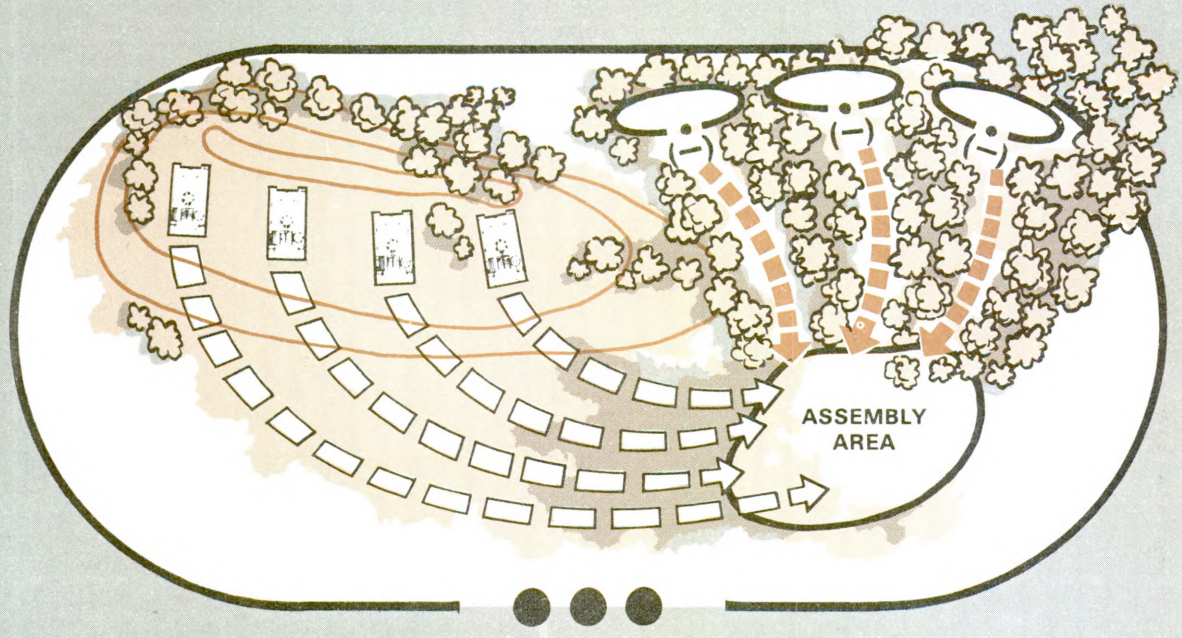
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This allows for good positioning of both the carrier element and the maneuver element as both are positioned on terrain suited to their own capabilities. This usually allows a more determined defense of the ground than the first method A disadvantage of this deployment is that movement into and out of the position is usually slower and more difficult than when the squad leaders control their own carrier teams.

The maneuver element is usually positioned in close terrain which limits vehicular movement and has inadequate firing positions for the APCs.

The carrier element is positioned on terrain which has good APC firing positions with longer fields of fire and which allows APC movement. APCs may be positioned forward of, to the flanks of, or behind the maneuver element.

Positioning of carrier teams and maneuver teams must ease quick remounting of the maneuver element. For this, the platoon leader will plan for a platoon assembly area where the APCs will rejoin the maneuver teams. He also designated routes which allow covered but fast movement of both elements to the assembly area.



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The assembly area may be near the carriers' position, near the maneuver teams' position, or somewhere between the two.

When selecting the location, **remember:**

- As the carriers can move faster than dismounted troops and have more protection from fire, try to limit the amount of dismounted movement to reach the assembly area.
- The carriers often shift from one firing position to another, so their routes may have to change.
- It is harder to find covered routes for carriers because of their size.

The platoon leader decides on the composition of both the maneuver element and the carrier element, in accord with the mission of the platoon and the role each element has in accomplishing that mission. He normally is with the element that has the most important role and the platoon sergeant goes with the other element. The considerations for organizing the platoon are discussed in section IV of this chapter.

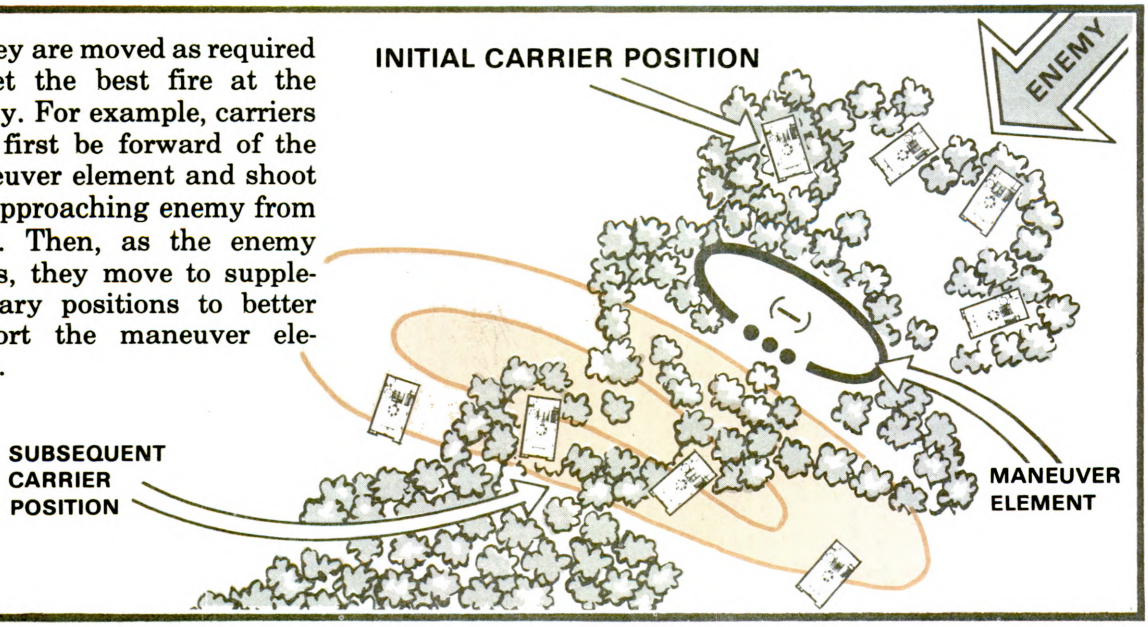
HOW THE CARRIER ELEMENT SUPPORTS THE MANEUVER ELEMENT.

The carrier element normally supports the maneuver element with Dragon and machinegun fire. These weapons may be fired from the carriers or from dismounted positions near the carriers. The carrier element can be a considerable distance away from the maneuver element. The requirements are that the carrier element can--

- support the platoon (-) by fire.
- rapidly rejoin the maneuver element using covered and concealed routes.

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They are moved as required to get the best fire at the enemy. For example, carriers may first be forward of the maneuver element and shoot the approaching enemy from there. Then, as the enemy closes, they move to supplementary positions to better support the maneuver element.



The platoon leader assigns the carrier teams primary positions and sectors of fire, and supplementary positions and sectors of fire. Time permitting, he also picks alternate positions. Carrier teams move to alternate positions as required by enemy action. Routes between positions must have cover for the carriers. Be careful not to destroy camouflage when you drive into an area. Pick carrier positions before moving into the area, then move into them carefully. After concealing your carriers, camouflage their tracks. These steps are required if your position is to be **UNDETECTED BY ENEMY AERIAL OBSERVERS.**

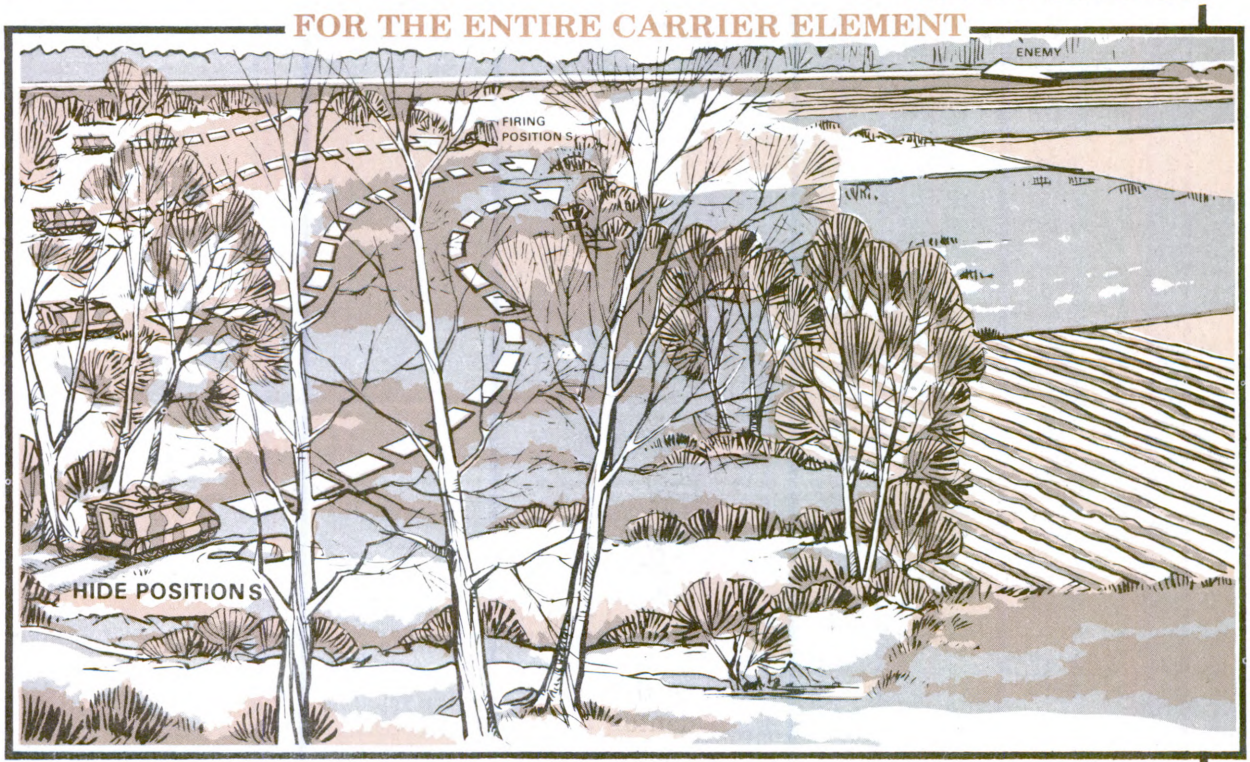
When the covered positions available are not adequate or when multiple avenues of approach exist, the platoon leader may keep the APCs centralized in a platoon hide position which eases fast movement to firing positions. This simplifies control and allows quick massing of fire on whichever approach the enemy uses. There can be a separate hide position for each carrier, or one large hide position for the entire carrier element. To use a hide position, an observer(s) remains forward so that he can see the enemy avenue of approach. The carriers are positioned to the rear--covered and concealed.

When the observer sees a target(s) in range, he calls the carrier(s) and they move forward into firing positions.

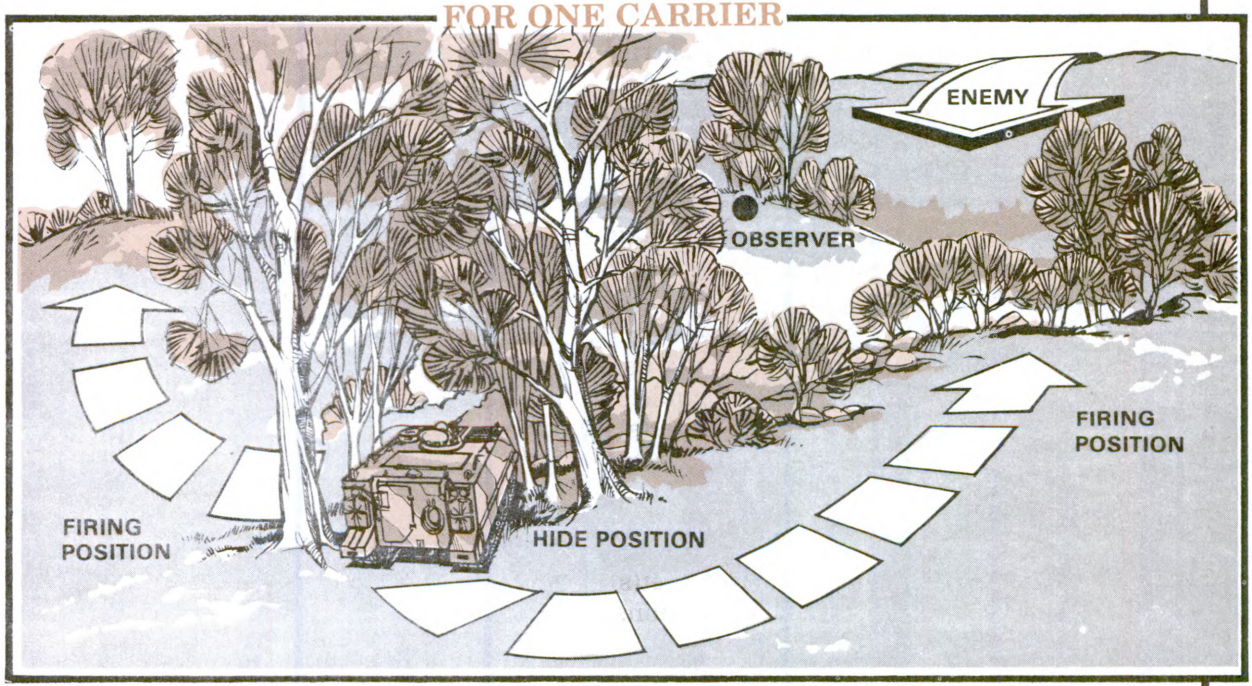
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HIDE POSITION

FOR THE ENTIRE CARRIER ELEMENT



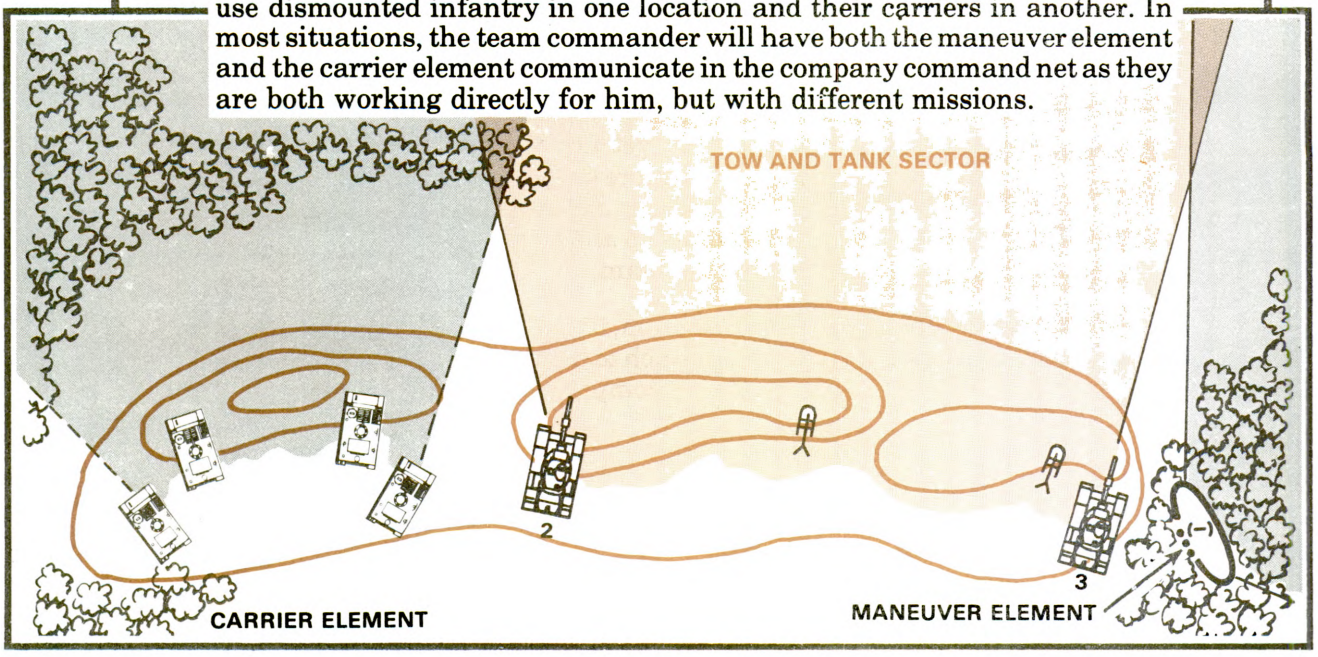
FOR ONE CARRIER



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MANEUVER ELEMENT AND CARRIER ELEMENT ON SEPARATE BATTLE POSITIONS

This deployment is used when the company team commander needs to use dismounted infantry in one location and their carriers in another. In most situations, the team commander will have both the maneuver element and the carrier element communicate in the company command net as they are both working directly for him, but with different missions.



Remounting the carriers is difficult when so deployed because of the separation distance. The platoon assembly area is normally located near the maneuver element's position.

In this deployment, the platoon leader normally stays with the maneuver element and the platoon sergeant with the carrier teams, unless the carrier element is performing a far more critical task.

The carrier element and the maneuver element are also separated if the platoon is ordered to occupy positions in heavily wooded or rugged terrain where the carriers cannot go. Because it precludes employment of the cal .50 machineguns, this is not a desirable way to deploy the platoon. When it is so deployed, the platoon sergeant normally goes with the platoon leader and the maneuver element. The assistant platoon sergeant controls the carrier element.

In this deployment, the maneuver element fights with no support from the carriers. So, the number of men, weapons (machineguns, Dragons), mines, equipment, and supplies accompanying it is usually larger than when the other methods are employed.

SQUADS ON INDEPENDENT MISSIONS

When a squad has a mission that requires it to operate by itslef, (e.g., roadblock, antiarmor ambush), it can fight as a single mounted squad or with a maneuver team (dismounted) and a carrier team. The squad leader makes this decision once he gets to the area where he is to perform the mission. However, most every mission that is assigned to a single squad will require its maneuver team to dismount. The carrier team may fight mounted or it may dismount some men and weapons near the carrier.

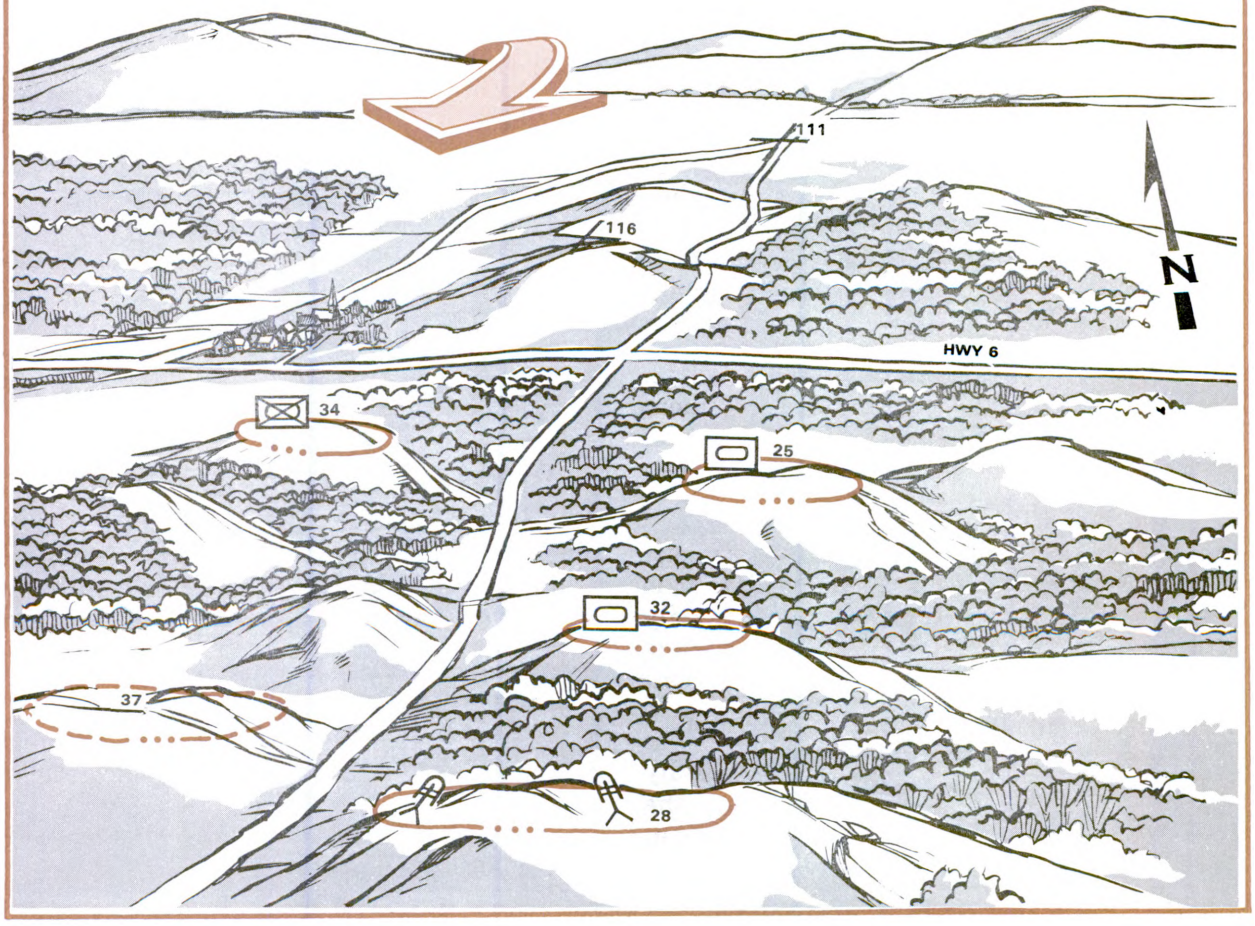
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Section IV.
PLATOON MISSIONS

DESTROY THE ENEMY WITH DRAGON AND MACHINEGUN FIRE

In defense, a company team may get the mission to occupy a battle position and kill the enemy in one or more designated sectors of fire. When he gets this mission, the team commander plans to kill as many enemy as he can at long- and mid-ranges and move to another battle position before the remaining enemy can close with the team.

When a company team has this mission, the mechanized infantry platoon is normally given a sector of fire in which to destroy the enemy with Dragon and machinegun fire. An example of a company team's battle position looks like this:



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From battle position (BP) 34, the team commander tells his mechanized infantry platoon leader:

"Mac, your primary sector of fire is from the village to that small hill over there (TRP 116). Use your machineguns and Dragons. Be prepared to hit the enemy west of the village if he comes around that side. If the enemy gets to highway 6, you pull back to the left side of BP 37. The tanks will cover your withdrawal. Right now one of our tank platoons is on the left side of BP 25 and the other is on BP 32. The TOWs are on BP 28."



NOTE

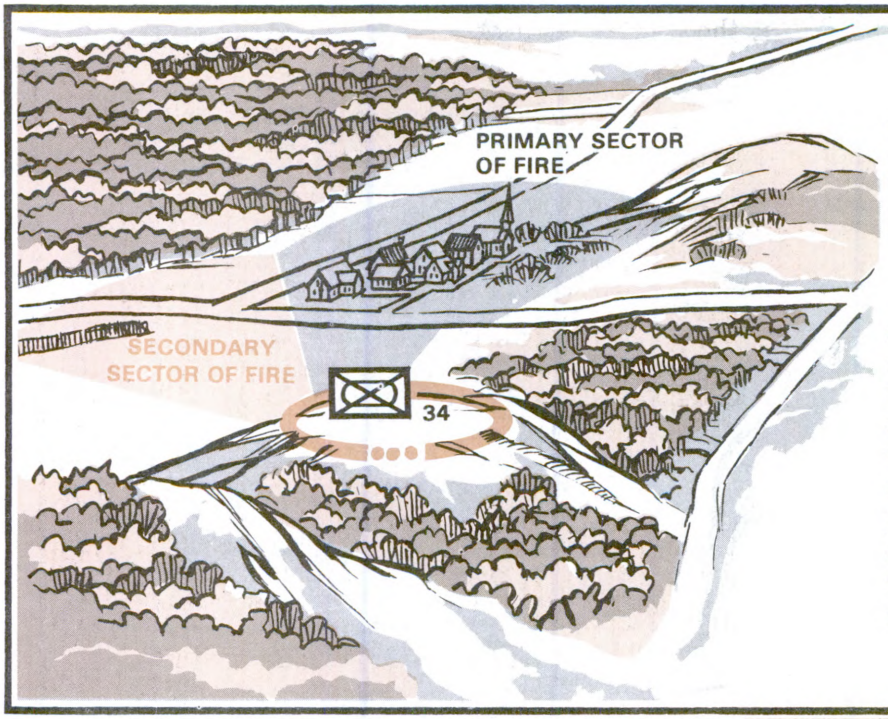
See chapter 7 for definition and discussion of TRP.

In order to accomplish this mission, the platoon leader must know--

- **the platoon sectors of fire.**
- **where he is to position his platoon.**
- **under which conditions to move (if appropriate).**

As in the above example, the team commander may designate primary and secondary sectors of fire for the platoon.

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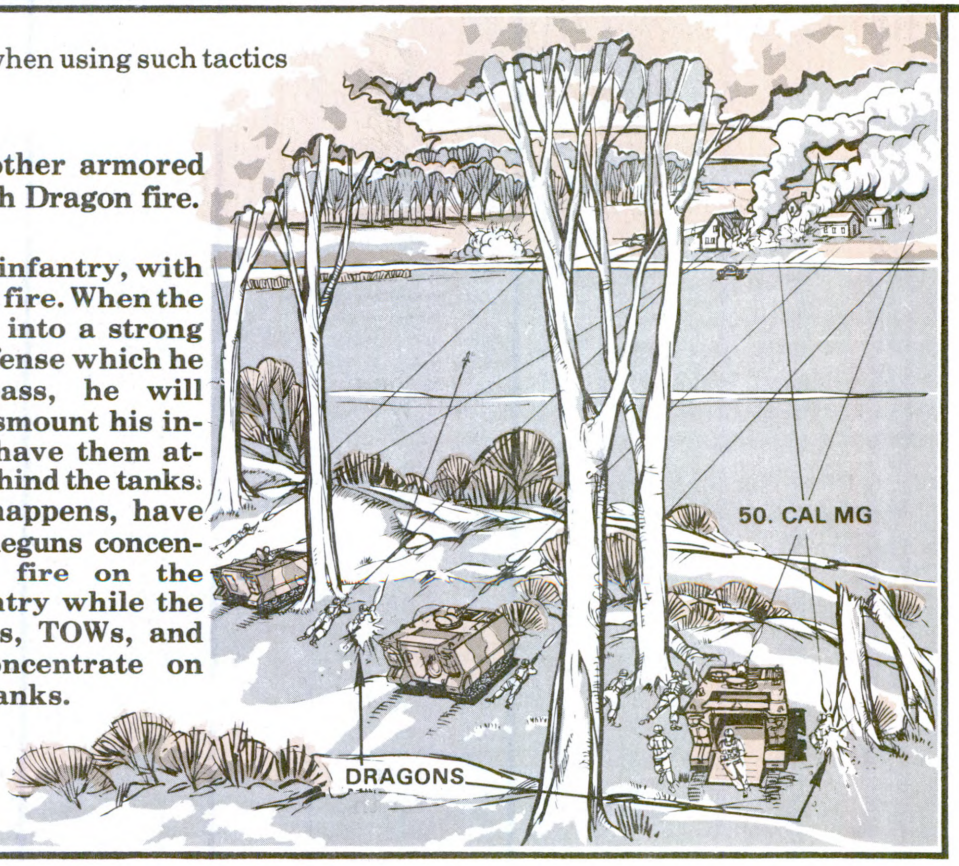


A *primary sector of fire* is an area into which a platoon must be able to fire. Weapons are positioned to cover this sector.

Secondary sectors of fire are sectors that must be covered on order or when no targets appear in the primary sector. A platoon may fire into the sector for a short time and then, usually on order of the platoon leader with permission of the team commander, move to a new position to avoid enemy counterfire.

Typical targets hit when using such tactics include--

- **tanks and other armored vehicles, with Dragon fire.**
- **dismounted infantry, with machinegun fire. When the enemy runs into a strong antitank defense which he cannot bypass, he will normally dismount his infantry and have them attack right behind the tanks. When this happens, have your machineguns concentrate their fire on the enemy infantry while the team's tanks, TOWs, and Dragons concentrate on the enemy tanks.**

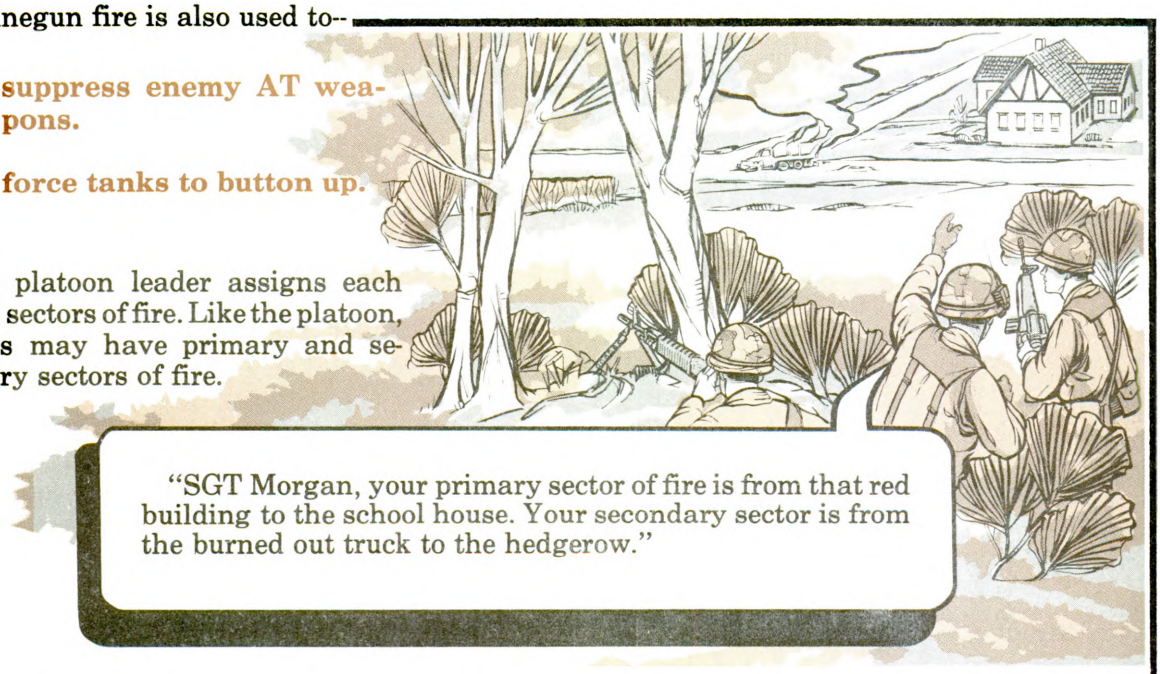


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Machinegun fire is also used to--

- **suppress enemy AT weapons.**
- **force tanks to button up.**

The platoon leader assigns each squad sectors of fire. Like the platoon, squads may have primary and secondary sectors of fire.



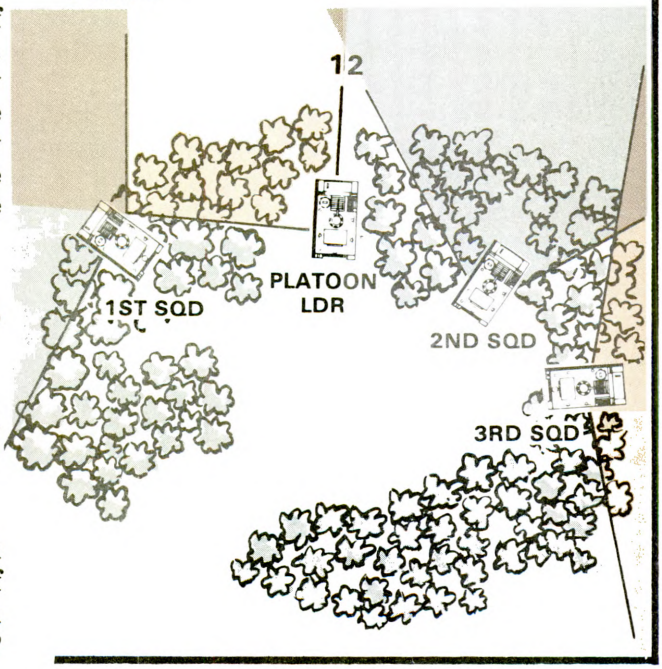
"SGT Morgan, your primary sector of fire is from that red building to the school house. Your secondary sector is from the burned out truck to the hedgerow."

Primary, alternate, and supplementary positions may be assigned for each carrier by the platoon leader. If not, the squad leader selects them. As battle positions are often occupied rapidly during this mission, the platoon leader may not have time to select positions for Dragons and machineguns. If he doesn't, the squad leader positions them. Dragons and machineguns are normally employed on or near the APC to allow the squad to rapidly move to avoid enemy counterfire. When firing the Dragon from the carrier, no other weapon can be fired from the carrier at the same time.

A ***primary position*** is the best position to accomplish the mission.

An ***alternate position*** is another position that allows a weapon to cover the same sector(s) of fire as the primary position.

A ***supplementary position*** is one which allows a weapon to cover different sector(s) of fire. To quickly designate sectors of fire when first occupying positions, a platoon SOP based on the clock method may be used, e.g., "Direction of may APC is 12 o'clock. 1st Squad take 8 o'clock to 10 o'clock, I'll take 10 o'clock to 12 o'clock. 2d Squad take 12 o'clock to 2 o'clock. 3d Squad take 2 o'clock to 4 o'clock."



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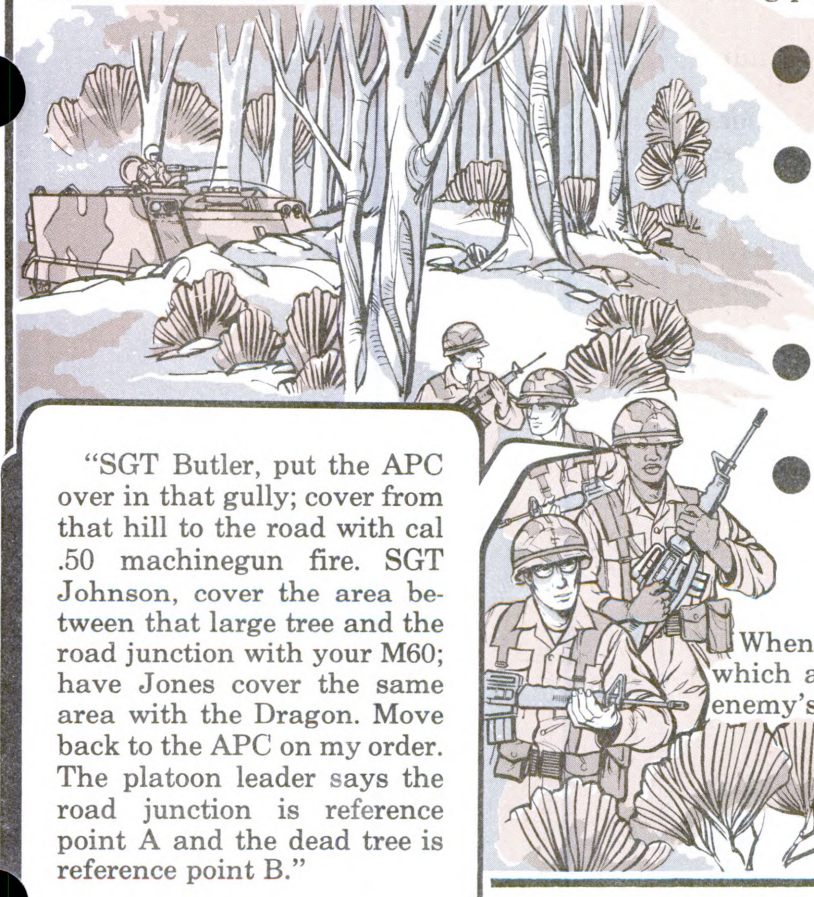


The platoon leader modifies these sectors of fire based on the mission and terrain. He may also designate easily recognizable reference points within the platoon sector to help control machinegun and Dragon fire. These reference points can be used when giving fire commands to the squads. For example, "The road junction is reference point A, the dead tree is reference point B."

Each squad leader picks exact positions for his APC. Dragons, M60 machineguns, and other weapons may be dismounted near the carrier to increase the amount of fire and observation of the squad or to protect the carrier. The squad leader uses the hide position technique when concealed firing positions for the APC are not available.

Firing positions must have--

- **cover, especially frontal cover.**
- **concealment--a weapon that is spotted by the enemy will be destroyed or suppressed before it can fire.**
- **fields of fire so the enemy can be hit.**
- **covered, concealed routes to and from the position.**

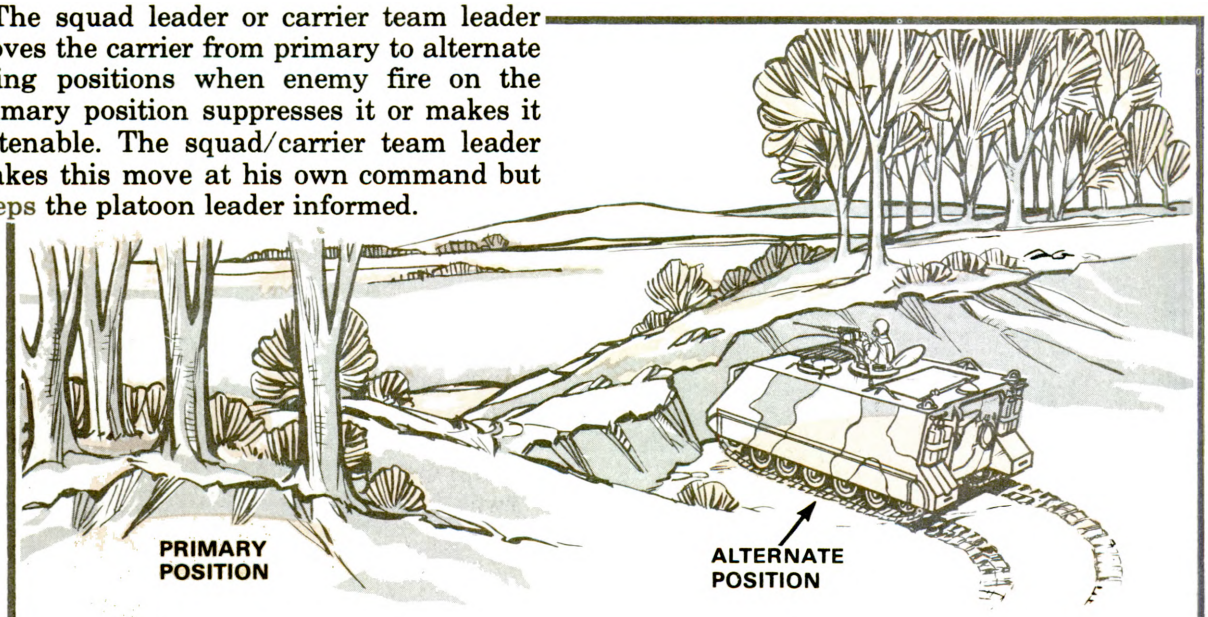


When possible, pick weapon positions which allow the weapons to shoot into the enemy's flank.

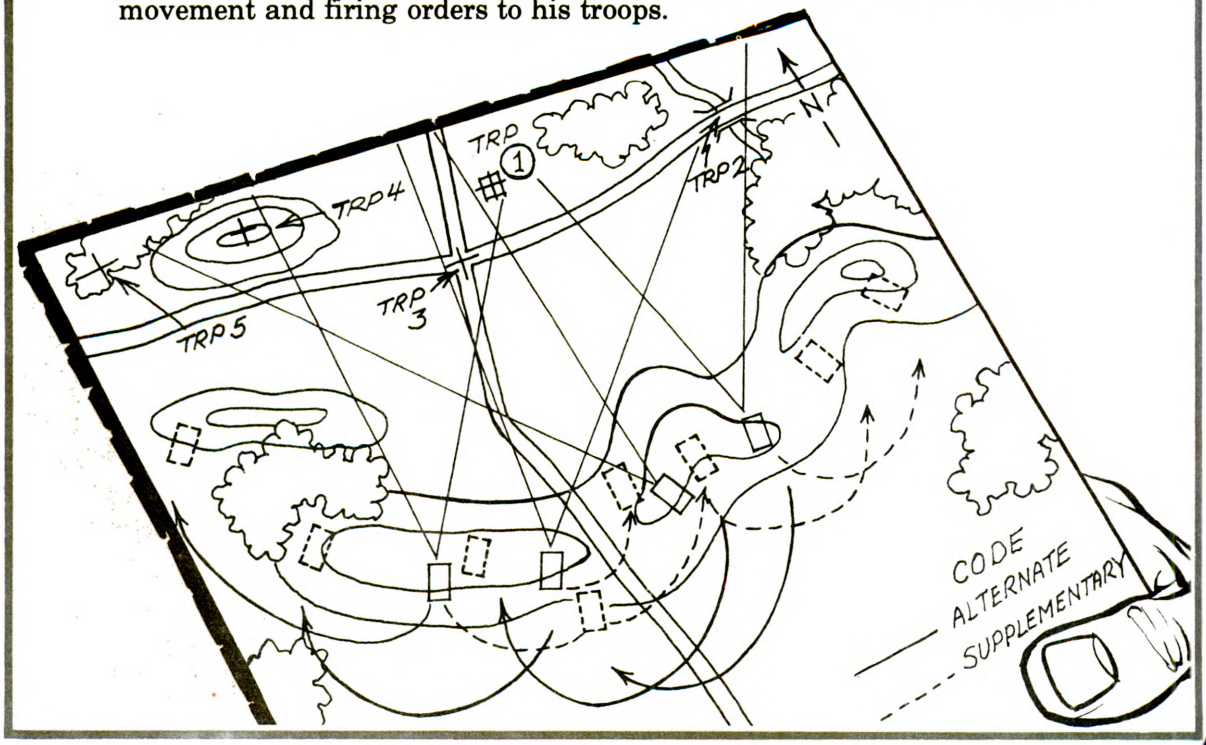
"SGT Butler, put the APC over in that gully; cover from that hill to the road with cal .50 machinegun fire. SGT Johnson, cover the area between that large tree and the road junction with your M60; have Jones cover the same area with the Dragon. Move back to the APC on my order. The platoon leader says the road junction is reference point A and the dead tree is reference point B."

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The squad leader or carrier team leader moves the carrier from primary to alternate firing positions when enemy fire on the primary position suppresses it or makes it untenable. The squad/carrier team leader makes this move at his own command but keeps the platoon leader informed.



The platoon leader, platoon sergeant, and each squad carrier team leader will prepare sector sketches showing primary, alternate, and supplementary APC positions, sectors, and TRPs. The sketches are used as a memory aid to allow the platoon leader to quickly and accurately give movement and firing orders to his troops.



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REPEL AN ENEMY ASSAULT FROM A BATTLE POSITION

When a platoon is required to defend and hold a battle position, it will normally defend dismounted, supported or overwatched by the carrier teams, TOWs, and tanks. However, in some situations it may have to hold a position by itself.

The carrier element has a major part of the platoon's firepower and can move that firepower as necessary to concentrate it on the enemy. The maneuver element is the focal point around which the carrier teams operate. By blocking dismounted enemy approaches, it provides the security that allows the carriers, tanks, and TOWs to move and mass their fire on the enemy.

HOW TO PREPARE A BATTLE POSITION (DISMOUNTED)

The general location for a dismounted platoon battle position is selected by the team commander. Battle positions for dismounted infantry are sited to hold key terrain, and to block enemy infantry and armor avenues of approach which cannot be covered with tank and ATGM fire. **Dismounted infantry battle positions should be where the enemy cannot hit them with long-range fire.** As a rule, dismounted infantry is not put into positions where it can be shot at by enemy troops located much beyond effective small arms/LAW range (about 200 meters). Battle positions are normally in buildings, in woods, or along other obstacles where a mounted assault cannot overrun the infantry. When natural obstacles are not adequate, reinforce them with manmade obstacles and mines.

Dismounted troops in a battle position have the primary mission of repelling enemy tanks and infantry assaults with close-in fire.

The machineguns are the primary weapons used by the platoon to stop the infantry attack. Artillery and mortar fires are also planned to stop infantry. Dragons, LAWs, and antitank mines are used to defeat the enemy's armored vehicles. Although some or most of the platoon's Dragons stay with the overwatching APCs, Dragons can and should be used with the dismounted maneuver element when fields of fire exist. Since the platoon's non-Dragon positions will be located where tanks cannot engage them, Dragons will often be forward of the rest of the platoon, and fall back when the infantry attack begins or they are suppressed by tank fire.

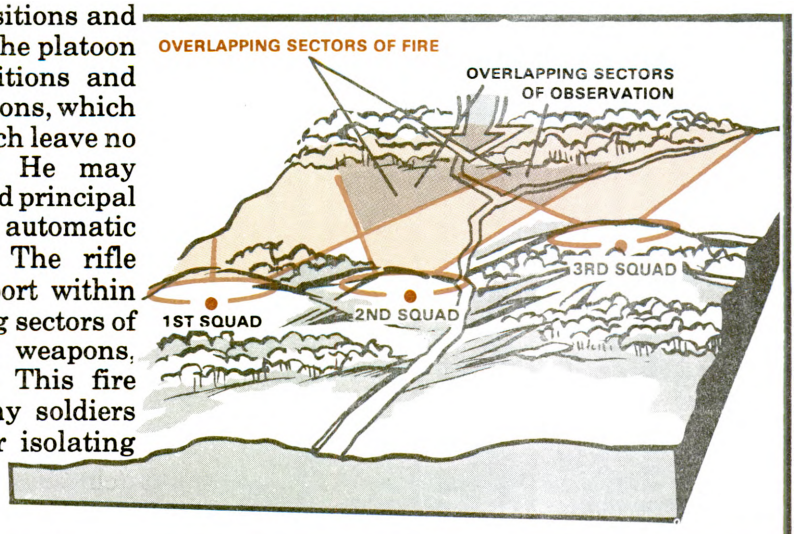
When preparing the platoon (-) battle position, the platoon leader will tell each squad leader how many machineguns to bring forward. He will also tell each squad leader whether to bring a Dragon forward or leave it with the carrier team.



"SGT Griffin, put your squad in positions from that fork in the trail to that log. Put a machinegun on your right flank firing across 2d Squad's front. Put your Dragon in here to fire down that trail."

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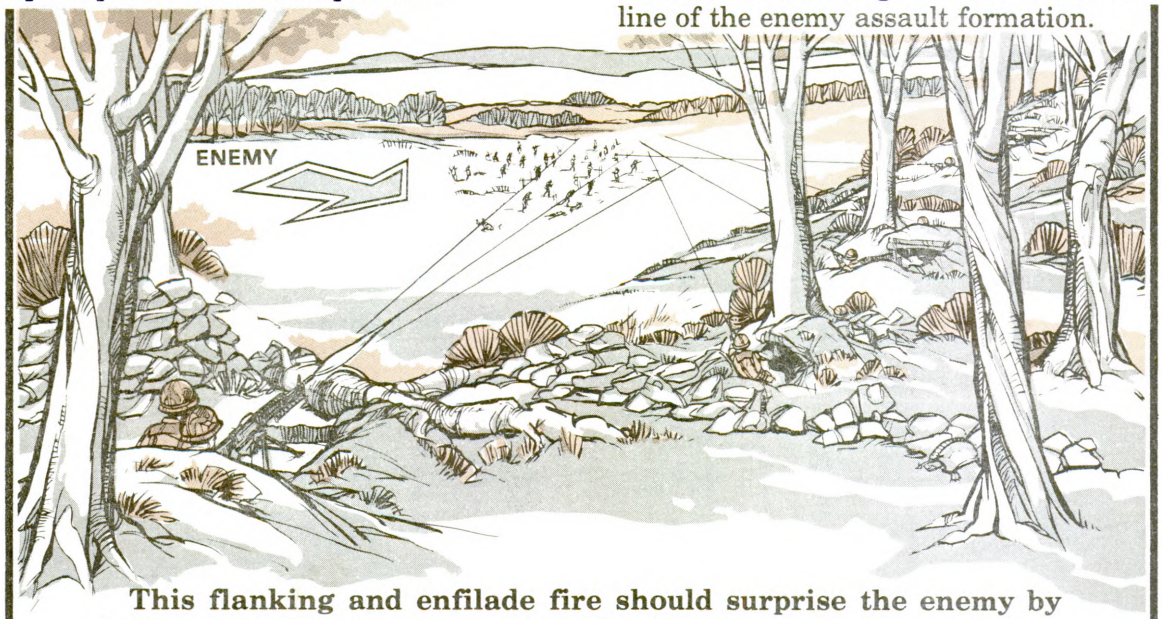
After selecting machinegun positions and designating their sectors of fire, the platoon leader assigns rifle squads positions and sectors which protect the key weapons, which are mutually supporting, and which leave no gaps in the platoon's sector. He may designate the general locations and principal directions of fire for the squad's automatic rifles and grenade launchers. The rifle squads arrange for mutual support within the platoon by having overlapping sectors of observation and fire between weapons, fighting positions, and squads. This fire must be sufficient to keep enemy soldiers from penetrating the position or isolating any part of the platoon.



POSITIONING MACHINEGUNS

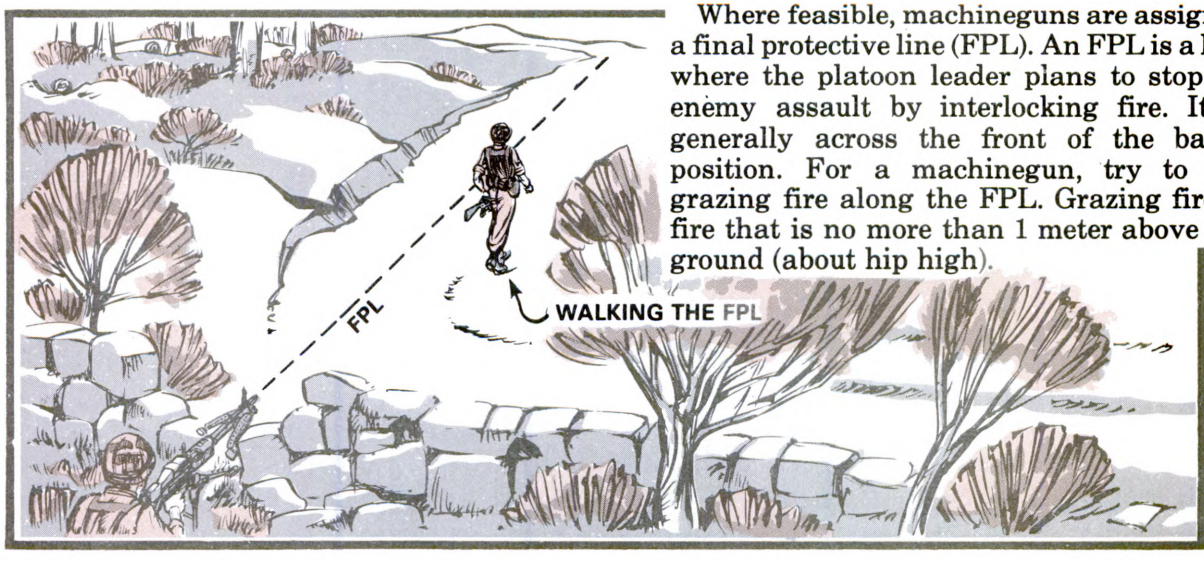
Normally all the platoon's M60 machineguns with tripods are brought to the battle position. However, due to reduced strength or a need to employ additional machineguns with the carriers, this figure may be reduced. There should be at least one M60 machinegun per squad in the battle position.

In the defense, the machineguns are used on tripods with T&E mechanisms and positioned so they have sectors of fire across the platoon's front and interlocking fire with other platoons. Machinegun positions should have frontal cover. Machineguns are most effective when firing enfilade fire down the line of the enemy assault formation.



This flanking and enfilade fire should surprise the enemy by hitting him from an unexpected direction.

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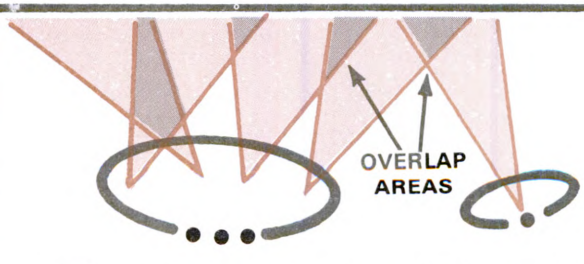
Where feasible, machineguns are assigned a final protective line (FPL). An FPL is a line where the platoon leader plans to stop an enemy assault by interlocking fire. It is generally across the front of the battle position. For a machinegun, try to get grazing fire along the FPL. Grazing fire is fire that is no more than 1 meter above the ground (about hip high).



In some cases, a gully or ditch might lead into a position, and the machinegun will be positioned to fire directly down the approach rather than across the unit's front and will be assigned a primary direction of fire (PDF) down that approach.

A machinegun is always laid on its FPL or PDF unless engaging other targets.

All machineguns start firing their FPL at the same time and on signal.

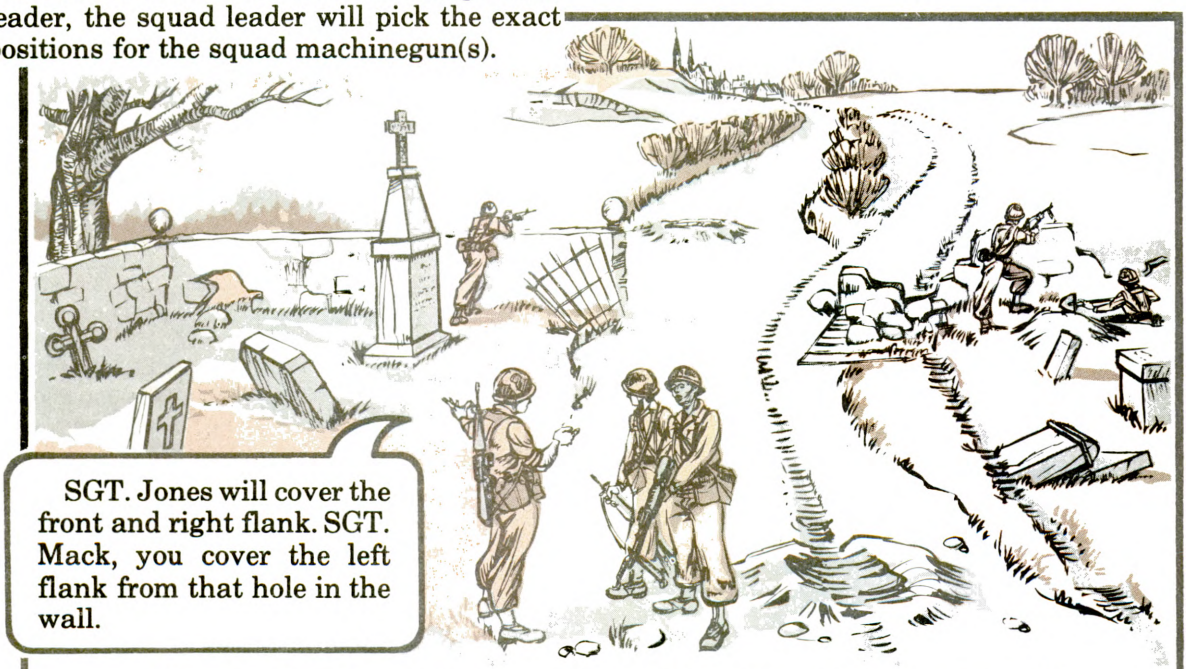


Machinegun sectors of fire are selected to provide coverage of dismounted approaches into and around the platoon position. Other considerations for the platoon leader when selecting general positions and sectors of fire for machineguns are--

- machinegun sectors of fire should overlap with other machineguns of the platoon and adjacent platoons.
- machinegun FPLs should also overlap so that the loss of one machinegun will not leave gaps.

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Based on the instructions from the platoon leader, the squad leader will pick the exact positions for the squad machinegun(s).



The squad leader selects the position which allows best coverage of the sector of fire and the most grazing fire for the FPL or best coverage down the PDF. Dead space along the FPL is found by having a man walk the FPL. The gunner watches the man walking down the line and marks areas which cannot be covered by grazing fire. The squad leader covers any dead space with grenade fire from the dual purpose weapon.

The platoon leader will then check out these positions, either approving them or modifying them as necessary. When the platoon leader approves the exact machinegun positions, the squad leader will have them dug-in and fields of fire cleared for them. The rest of the squad is positioned to protect the machineguns and then they dig-in (app C).

Rifle fire, GL fire, and Claymores protect the machineguns and cover areas not covered by their fire. Obstacles and mines are emplaced and cover and concealment improved. Artillery and mortar fires are planned.

Positions must have observation, good fields of fire, cover and concealment. Arrange them so they are mutually supporting; yet take advantage of every bit of natural cover and concealment available.

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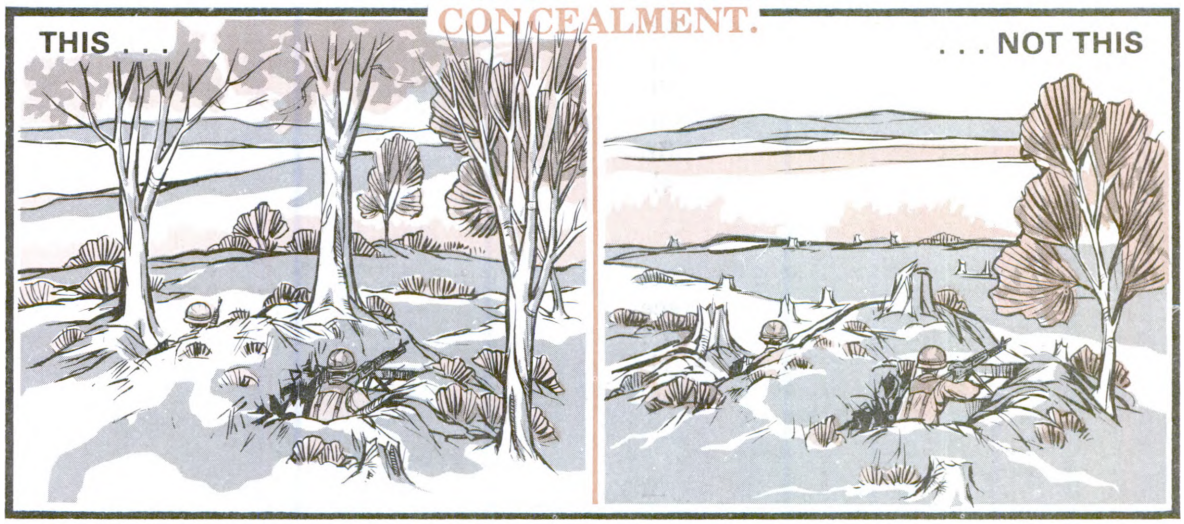
OBSERVATION

Each soldier must be able to see or detect the enemy before he comes within his sector of fire. Fields of observation for rifle squad positions are normally limited to the effective range of weapons in the positions. For longer range observation, the leaders may put out OPs.

FIELDS OF FIRE

Each position must have a good field of fire in its sector(s) of fire. When fields of fire are not good, improve them by selectively clearing and cutting grass, crops, bushes, and trees; demolishing buildings; or cutting fire lanes through thick woods. Fire lanes should be close to the ground and hard to detect.

CLEARING TOO MUCH WILL WARN THE ENEMY. DO NOT DESTROY NATURAL CONCEALMENT.



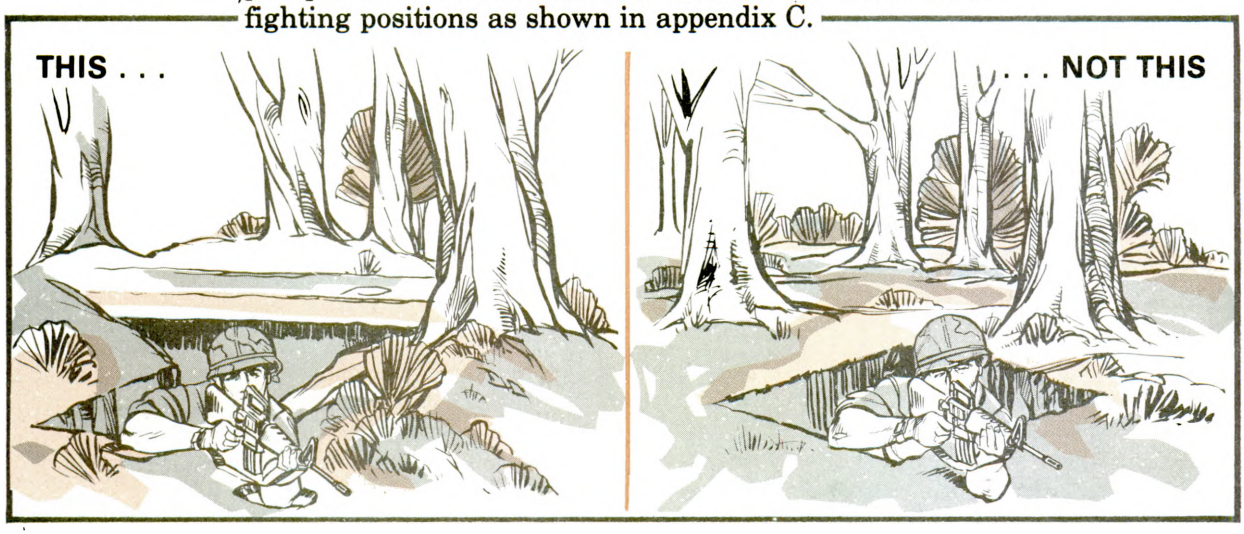
Emplace limiting stakes or other markers to define sectors of fire and preclude firing into an adjacent position.

COVER

Locate each position to exploit frontal cover--trees, mounds, stumps, etc.--to blend in with the surrounding terrain. At least the equivalent of 18″ of earth should be between the soldier and the enemy. Frontal cover is important so a soldier can shoot without exposing his head to enemy fire.

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When there is not enough natural cover, build a frontal parapet for frontal cover. For cover from indirect fire, build fighting positions as shown in appendix C.



CONCEALMENT

Positions must blend with surroundings to prevent detection from the front. They must be checked from the front to insure enough concealment.



MUTUAL SUPPORT

Positions should be arranged, relative to each other, so that each one can be covered by fire from at least one other position firing across its front at a distance beyond hand-grenade range (35 meters).

Position flank weapons to tie-in with adjacent units and leave no gaps uncovered.

RIFLEMEN/AUTOMATIC RIFLEMEN

Each squad leader identifies avenues of dismounted approach into his squad sector. Typical dismounted approaches are wooded or brush areas, walls and fences, and draws and ravines. All of these will provide an attacker some cover. Streambeds and trails are approaches, especially at night.

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These are the areas that you should cover with your riflemen and automatic riflemen. If the platoon leader has already covered them with machinegun fire, find out from the gunner where the gaps are and cover them with rifle fire. If there are no gaps, then assign riflemen sectors that will overlap the machinegun's sector to have fire throughout the squad's sector. During the defense, use riflemen to man key weapons whose gunners have become casualties.

GRENADIERS

Position grenadiers to cover the entire squad sector so that what one grenadier cannot hit, the other can. Position grenadiers to cover the dead spaces in the machineguns' FPF. Aiming stakes, rocks, etc., will enable him to fire without being exposed. Enemy infantry dismounting from carriers is an excellent target for the grenadiers. As the 40-mm HEDP round will penetrate 2 inches of steel, they can use the GL against a BMP.

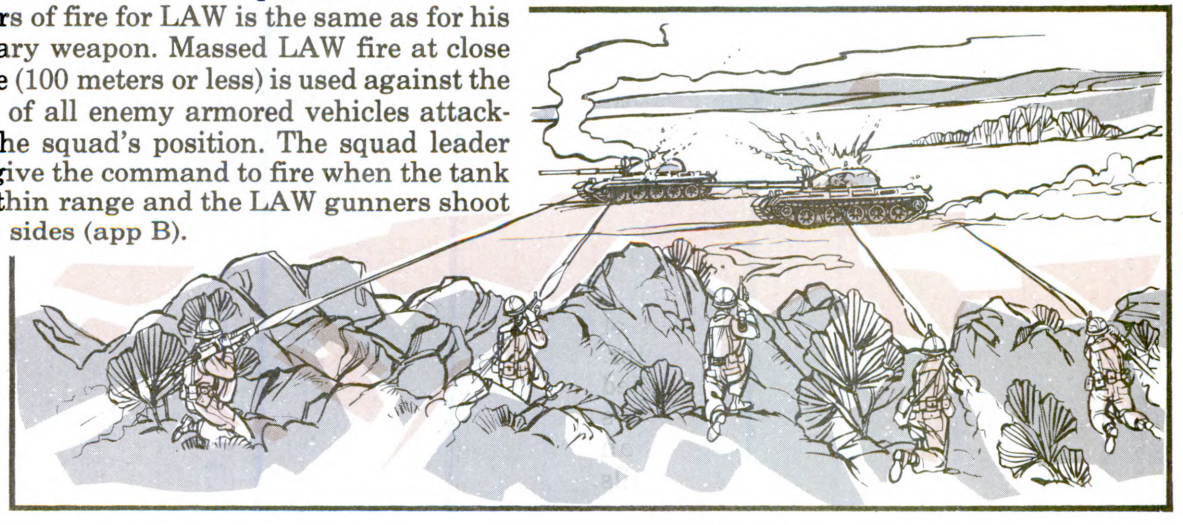
LAWs

LAWs are the squad's primary close-in antitank weapon. Each soldier should have several LAWs in his position. A man's sectors of fire for LAW is the same as for his primary weapon. Massed LAW fire at close range (100 meters or less) is used against the sides of all enemy armored vehicles attacking the squad's position. The squad leader will give the command to fire when the tank is within range and the LAW gunners shoot at its sides (app B).

ANTIPERSONNEL AND ANTITANK MINES

Cover all enemy approaches into your position adequately. To cover any dead space that cannot be hit with grenade launchers and to supplement the fire of your riflemen, use Claymore and other antipersonnel mines. When command detonated, they are employed like any other weapon. A Claymore must be fired by a man who can see its sector of fire. They can be double wired so that they can be fired from either the position they protect or the adjacent position in whose primary sector of fire and observation they are located. Aim the Claymore to maximize its effects. Have an SOP for firing, e.g., "Soldiers shoot targets in their sectors with their individual weapons unless there are too many targets, in which case they use Claymores." If more than one Claymore covers the same sector, the squad leader must establish a firing sequence. Since there is only 100 feet of wire with the Claymore, see that soldiers in adjacent positions are not in its danger area. Place either a sandbag or mound of dirt beind the mine and between it and the adjacent position, to deflect the blast. Firing wire is buried 6 inches to keep it from being cut by incoming fire.

CONCEAL MINES SO THEY WILL NOT BE DETECTED



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Use antitank (AT) mines for close-in protection against armored assaults. Place AT mines where they can be covered by LAW fire on likely tank routes. At least one mine is emplaced per position, but more can be used depending on the vulnerability of the squad to armored attack. The M21 mine, with its relatively light weight and high lethality, is the best type mine to use, but other AT mines are also good.

When using mines this way, the squad must remove all the mines they emplace before leaving the position. When this is not possible, such as when a withdrawal under pressure is ordered, the fact that mines were left in place must be reported. (See appendix M for information on emplacing and removing standard US mines).

PLATOON LEADER/SQUAD LEADER POSITIONS

The platoon leader and squad leaders must have positions from which they can control the fire of their men. If a squad leader has enough men, he positions himself slightly behind them where he can see and contact them.

If a squad's strength is reduced, or if the terrain does not permit the squad leader to establish a position to the rear, he mans a forward position. He must be able to maintain contact with his platoon leader and his fire team leaders. Likewise, the platoon leader must look for position(s) that allow him to overlook the platoon's entire sector or at least the most critical part(s) of it.

PRIORITIES OF TASKS

These are ordered by the team commander, normally by unit SOP. In most situations, the first four tasks are:

- *Provide security* unless the team has established local security. Some members of the platoon must provide security while the others prepare the battle position. Normally each platoon will have at least one OP forward of its position.

- *Position weapons and soldiers* to cover the platoon/squad's sector with fire and to have as much natural cover and concealment as possible.

- *Clear fields of fire* as much as necessary for the squad to cover its sector. Don't overclear.

- *Prepare fighting positions* (app C).

Work on many of these tasks is concurrent. Given time, additional tasks may include emplacing obstacles, installing wire obstacles, preparing alternate and supplementary positions, and laying communication wire. If there is any change to the SOP, it is given to you in the team commander's defense order.

STRONGPOINTS

In some cases, a company team or battalion task force is ordered to develop a battle position as a strongpoint. This is an exceptional case, appropriate only when the retention of the battle position is crucial to the overall defense because it gives a truly decisive advantage to the defender. A strongpoint is selected and developed so as to keep the enemy from bypassing it, from being able to overrun it with tanks, from being able to destroy it with heavy fire, or from being able to overwhelm it with a dismounted attack. A platoon in part of a strongpoint is given time and materiel to prepare the position. The tasks of the squad when preparing a strongpoint are directed by the

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team commander and, while similar to those for the preparation of any battle position, require a greater development of positions, fields of fire, barriers, etc. Some things a platoon may do are:

- Prepare alternate and supplementary positions.
- Build trenches between positions.
- Build bunkers or overhead protection positions.
- Prepare an extensive system of obstacles and mines.
- Stockpile ammunition, food, and water.



Alternate positions are occupied when enemy fire suppresses soldiers on their primary position. There must be covered routes or trenches between primary and alternate positions.

Bunkers are prepared. Key weapons are bunkered first and rifle positions last. Men from the squad will often be told to help weapon crews in this task. Provide natural frontal cover and concealment for bunkers or enemy direct fire will easily knock them out. The construction of trenches and bunkers is discussed in appendix C.

An enemy attack may be dismounted, mounted, or a combination of both. It will be preceded by heavy indirect and direct fire on your position.

As soon as the indirect fire lifts off your position, every man must be ready to shoot, for the enemy follows right behind this artillery preparation.

CONDUCT OF DEFENSE AGAINST A DISMOUNTED ATTACK

When enemy infantry attacks, indirect fire is placed on him as soon as possible. Small arms are fired when he comes within effective range.

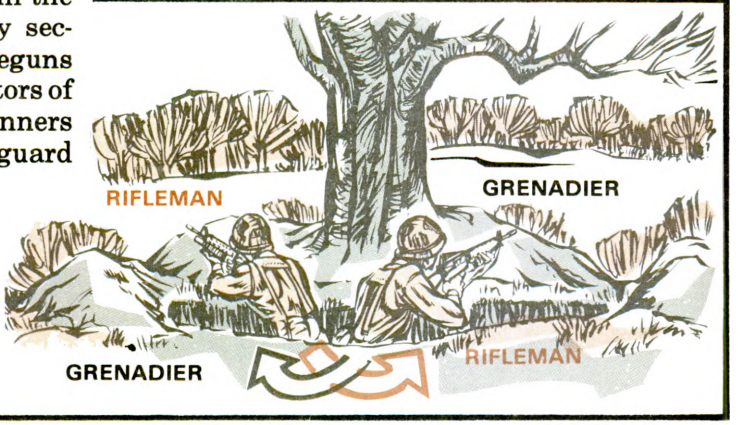
When faced with enemy probing attacks (where he fires at your position or attacks with small groups of men), hold the fire of your machineguns. Fire Claymores and grenades. The purpose of such attacks is to find your positions--don't let them do it.

When faced with a major enemy assault, shoot as soon as the enemy comes within your sector of fire. When no targets appear in

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a primary sector of fire, shoot targets in the secondary sectors. Targets in primary sectors of fire take priority, but machineguns can be shifted to fire into secondary sectors of fire. Between bursts, the assistant gunners must check their primary sectors to guard against enemy movement there.

Grenadiers may switch positions to put GL fire where it is needed most.



As the enemy begins his assault, the platoon leader calls for all final protective fires (FPFs). Machineguns fire on their final protective lines. Grenadiers fire into designated dead space areas, and the FOs call for indirect fire FPFs which support the assaulted platoon(s).

If the situation warrants, a platoon leader may call for indirect fire within his platoon's position. When the enemy backs off, relentlessly continue to shoot at him until ordered to cease fire.

CONDUCT OF DEFENSE AGAINST A MOUNTED ATTACK

Infantry usually defends in terrain which restricts or limits the mobility and firepower of tanks. However, if the enemy does attack with armored vehicles,

SKILLFUL, AGGRESSIVE INFANTRY USING ALL OF THE AVAILABLE ANTITANK WEAPONS FROM THE SECURITY OF COVER AND CONCEALMENT, HAS THE EDGE ON HALF-BLINDED, BOXED-IN ARMORED VEHICLE CREWS.

Riflemen shoot at exposed crew members and force them to close their hatches. However, most small arms fire is directed at enemy infantry accompanying the tanks. If our infantry can stop the enemy infantry, their tanks become easy prey for our AT weapons.

Dragons shoot at enemy tanks as soon as they enter their sectors of fire. They fire at tanks in secondary sectors of fire when none are in primary sectors of fire. When picking targets, Dragon gunners make maximum use of the frontal protection of their positions.

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LAWs are fired at enemy vehicles that close on a squad's position. The squad leader will hold LAW fire until enemy tanks come close enough to be in the squad's protective minefield and close enough to get sure hits on the sides of tanks with his LAWs. The squad leader will normally try to have his entire squad hit one enemy tank with surprise volley fire.

GLs are fired at the sides of enemy BMPs and the sides and rears of tanks. As with the LAW, the grenadiers should wait until the BMP is close enough so they can get sure hits before firing.

Don't let the tanks running over your position shake you. Tanks are scary but, because they cannot see and are vulnerable up close, their accompanying infantry is a greater threat to you. Tanks cannot effectively attack you in your hole, but the infantry on foot will. Don't run away, that's when the tanks can kill you; stay and fight from your fighting positions. If the tanks pass over your position, shoot at their rears--that's the best place for LAWs to hit tanks anyway. Stay alert for trailing BMPs.

When an enemy assault is repelled, small unit leaders must prepare their men at once to meet a renewed assault. If the first attack was mounted, the next attack may be dismounted, supported by fire from tanks and carriers.

To prepare for the next attack, the leaders must:

Reestablish security.

If OPs withdrew to the battle position, send them back out.

If they did not get back to the platoon position, check their status.

If there are casualties, replace them with other men. As soon as feasible, implement a sleep /alert plan.

Redistribute/resupply ammunition.

Squad leaders pass out remaining ammunition and equalize that which is left between men. Take ammunition from casualties and give

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it to survivors. Take a quick inventory and request a resupply of ammunition if needed. Report ammunition status to the platoon leader.

The ***platoon leader*** requests ammunition resupply from the team commander. If necessary, he sends men to pick it up.

Evacuate the dead and seriously wounded.

Be sure that all sectors of fire are still covered and that casualties will not leave gaps in your defense. All positions must still be mutually supporting.

Replace camouflage.

When the situation permits, remove wilted material and replace with fresh camouflage. Do not overcamouflage a position. If it was not found during the first assault, chances are it will not be found in the next try.

Replace obstacles.

If enemy troops are far enough away, replace obstacles, mines, and early warning devices. This is a risky task, especially if the enemy has snipers. Your troops must be careful. Request smoke to cover their movement. You may have to replace obstacles when visibility is limited.

SITING POSITIONS IN A BUILT-UP AREA

Villages and towns constitute an obstacle for the attacker. They may fit into an overall plan to force the attackers to bypass the town and move into kill zones or endure a difficult and time-consuming house-to-house fight to root you out of town.

Select positions with the same considerations you do on other types of ground. Normally each squad will occupy a building, but larger buildings may be defended by a platoon. Select buildings for defense which:

- **are well built; concrete and steel construction are preferred.**
- **have strong floors to keep the structure from collapsing under the weight of debris.**
- **have thick walls and floors so the enemy can't shoot through roofs and walls to kill defenders in other rooms.**
- **are constructed of nonflammable material (avoid wood).**
- **do not have too many glass windows.**
- **are sited to allow good fields of fire. Buildings located adjacent to vacant lots, alleys, and parks allow better fields of fire than buildings located adjacent to other buildings.**

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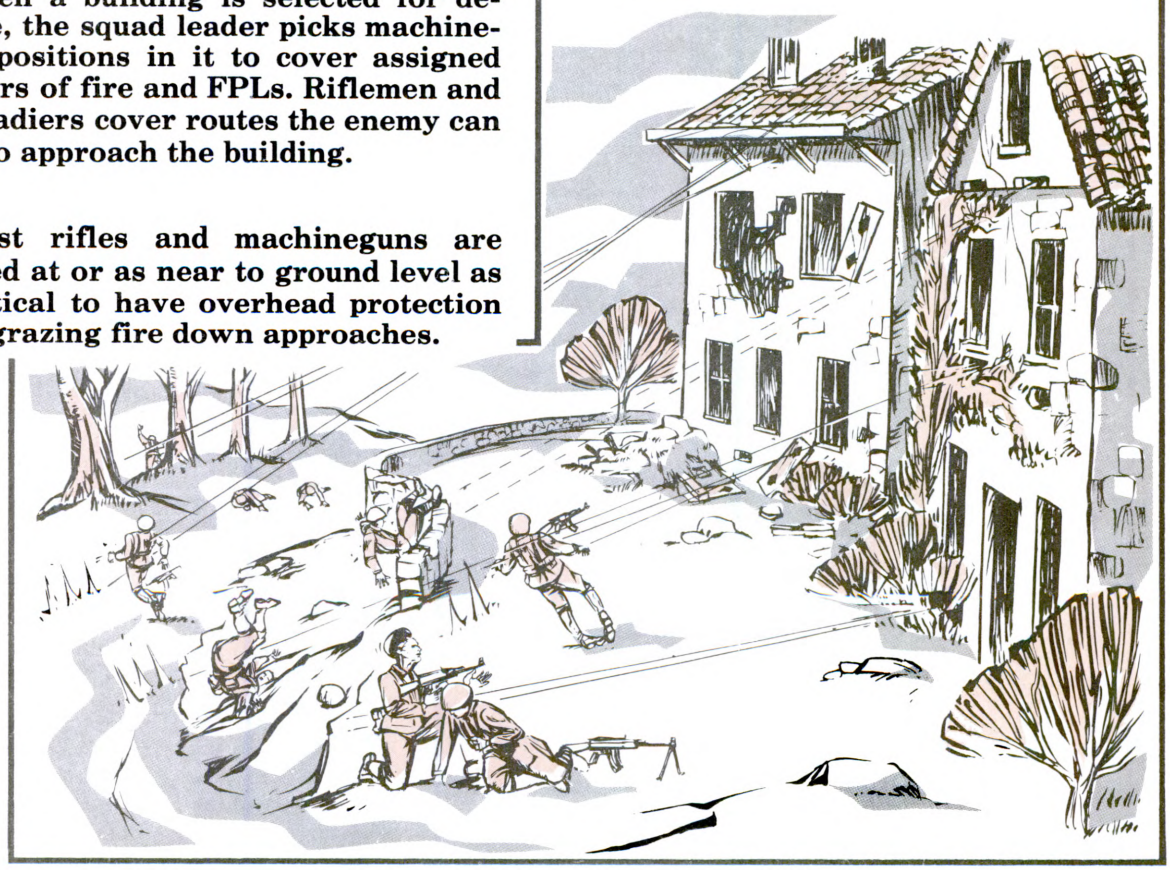


allow mutual support between buildings. No building should be subject to attack without troops in other buildings being able to help by shooting at the enemy.

When a building is selected for defense, the squad leader picks machinegun positions in it to cover assigned sectors of fire and FPLs. Riflemen and grenadiers cover routes the enemy can use to approach the building.

Most rifles and machineguns are placed at or as near to ground level as practical to have overhead protection and grazing fire down approaches.

Some rifles may be positioned higher to get a longer range and fire into areas that would be dead space to near ground level weapons.

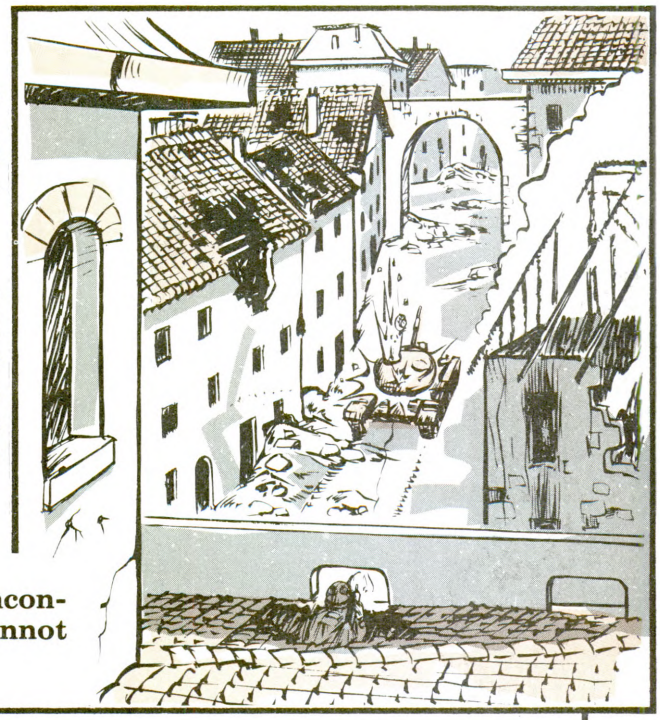


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Position Dragons where they can shoot down streets and alleys.

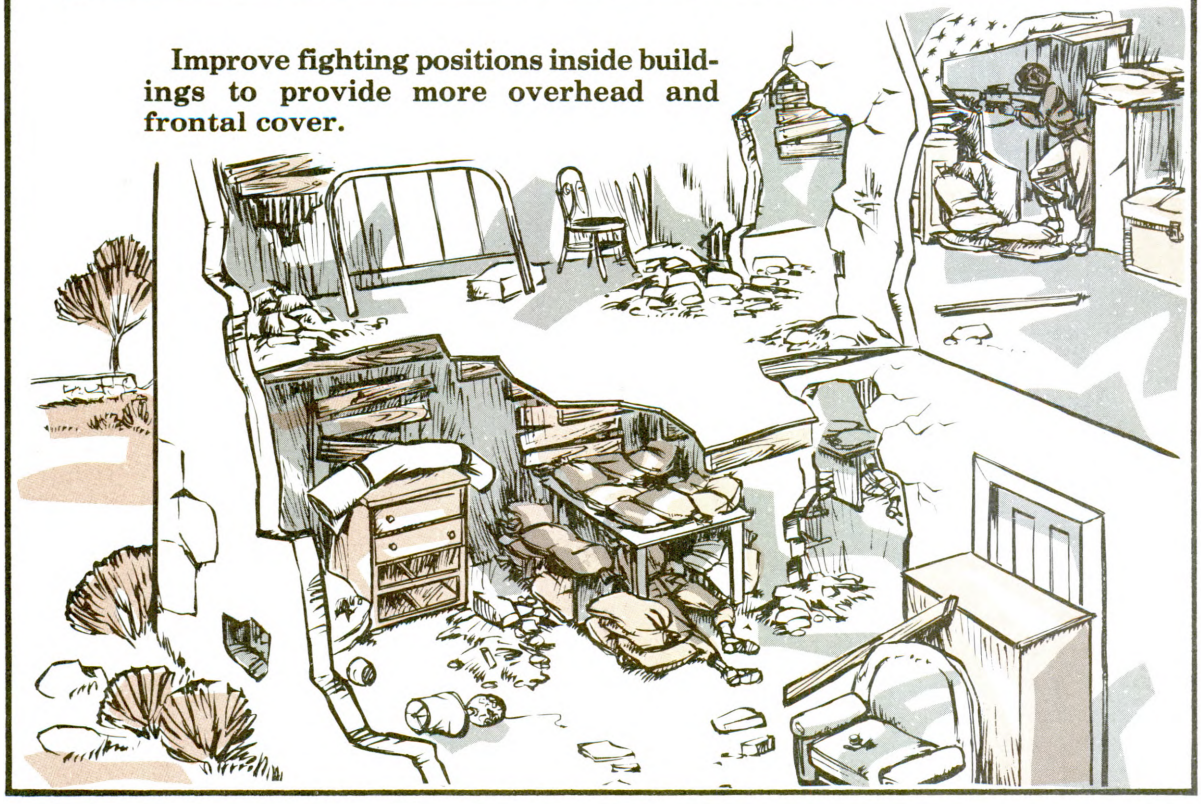
They may be positioned in, on top, or beside buildings. Consider the backblast (**app B**). They are often fired from short ranges and then moved to avoid counterfire, so withdrawal routes are important.

Employing LAWs and dual purpose weapons in built-up areas give them a good chance to hit enemy armored vehicles on the top or side where armor is thin. Backblast is not a factor with the dual purpose weapon but is with the LAW. Try to position LAWs so that they can fire down on tanks or BMPs.



The firing ports must be in inconspicuous spots so that the enemy cannot observe them.

Improve fighting positions inside buildings to provide more overhead and frontal cover.



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Cut or blow holes between rooms and floors for movement. This will allow your troops to move quickly by a covered and concealed route to numerous alternate and supplementary positions in a building.

Barricade doors, halls, and stairs to prevent enemy movement into and inside the house. Take down fire escapes.

- Alter the outside appearance of the building as little as possible.
- Screen or block windows and other openings to prevent enemy observation into the building and use of hand grenades. If you do this, do it to all windows so that the enemy can't figure out which ones you are behind.
- Remove combustible material to limit the danger of fire. Turn off electricity and gas. Stockpile water and dirt to fight fires.
- All soldiers in buildings should wear armored vests, earplugs, and goggles to protect them from dust and debris.

POSITION CARRIERS IN A BUILT-UP AREA

In a built-up area, armored vehicles may be hidden inside buildings or parked in their shadows. They should enter through the wall opposite the likely direction of enemy advance.

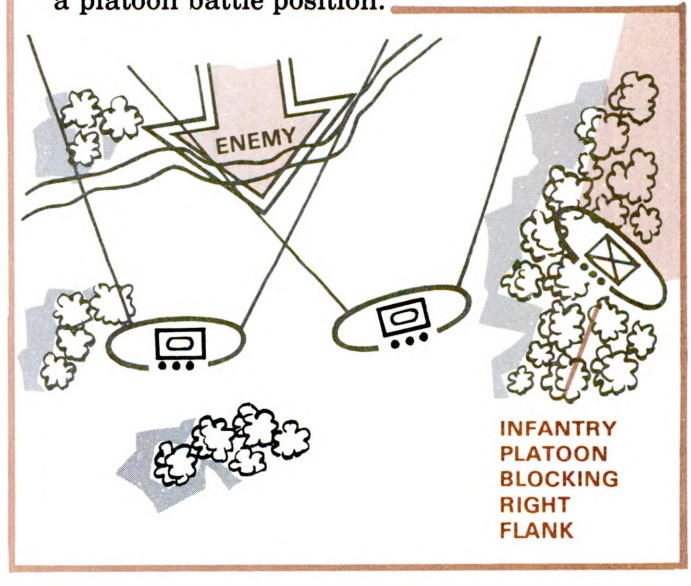
When moving into a built-up area that you will defend, keep the carriers on the road initially to avoid making tracks or tearing up trees, shrubs, and bushes; and to preserve the natural look.

Telltale tracks showing the presence of vehicles must be filled in or brushed over to restore the terrain's natural look. Be careful about making turns as the tracks may leave black skid marks on roads.

SECURITY FOR TANKS AND TOWS

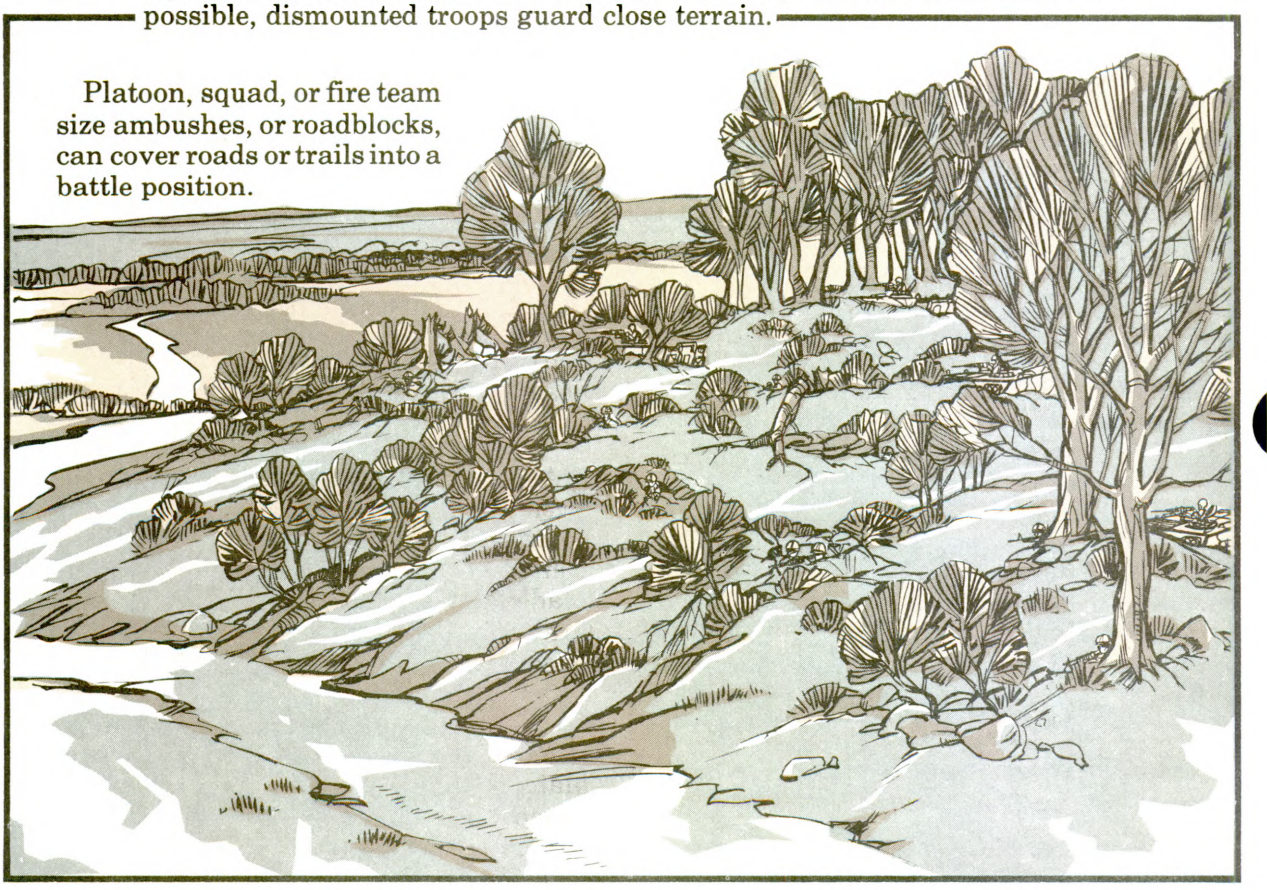
The team's tanks and TOWs destroy attacking enemy armor. Often the mission of a team is to shoot the enemy with long and mid-range fire and move before he can close on the team. In such cases the infantry must secure or protect the team from surprise mounted and dismounted enemy attacks. The area to be secured is determined by the team commander. The infantry must detect the enemy and warn the team early enough for it to react. This may require the infantry to fight to slow or temporarily stop the enemy. Such security is particularly important in close terrain or under weather conditions which restrict long-range observation.

As described earlier, an infantry platoon can sometimes secure TOWs and tanks by blocking a covered avenue of approach from a platoon battle position.



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However, since tank and TOW positions are often dispersed laterally and in depth, the approach may be too wide for a platoon to block from one platoon battle position, or there may be too many covered avenues of approach. In this case, the platoon may spread out and prepare separate squad and smaller size positions and OPs to monitor the avenues of approach. With such a mission, a platoon leader must first check with the leaders of the TOWs and tanks in the area he is to secure and find out which areas they cannot cover with fire. Infantry is deployed to cover these areas. Open areas are normally covered by carrier, TOW, and tank fire. Whenever possible, dismounted troops guard close terrain.



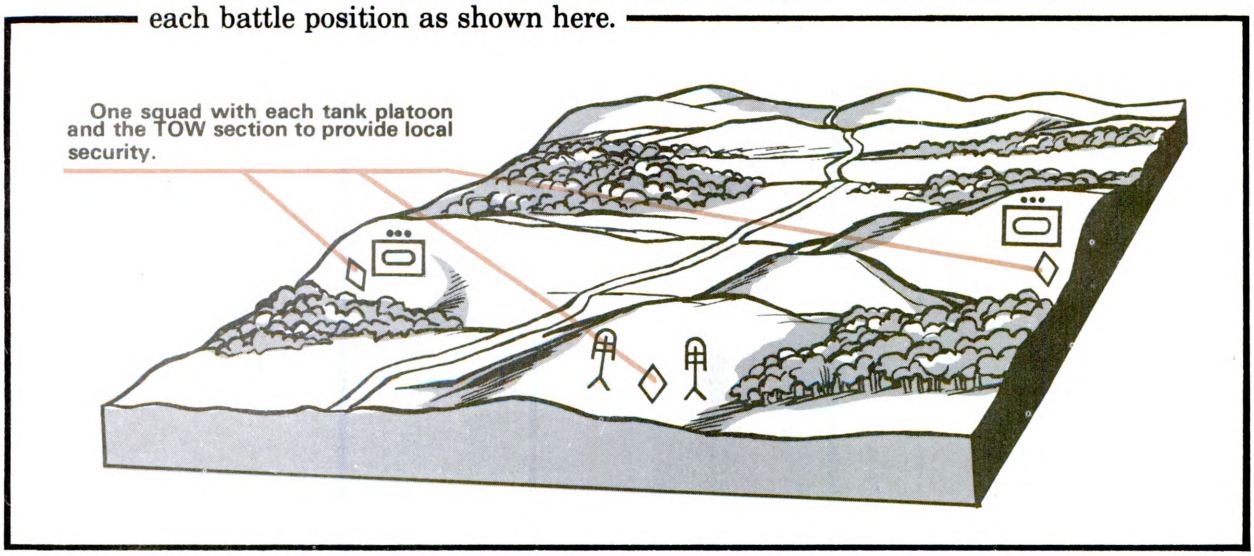
Platoon, squad, or fire team size ambushes, or roadblocks, can cover roads or trails into a battle position.

When the sector is too wide or close to be covered from stationary positions, patrols must be run between positions. These patrols are normally dismounted, as they are more likely to detect enemy dismounted movement and less likely to give away the team position. Mounted patrols may be used if the areas to be patrolled are too large to be adequately covered by dismounted patrolling.

Because of the distances between elements with this mission, the squads are employed with their carriers to increase their ability to mount quickly and move, and to make more firepower, radios, and night observation devices available to squad leaders.

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In some cases, the team may fight from separated tank platoon and TOW section battle positions, and the infantry may provide local security for each battle position as shown here.



When a squad has such a task, it will set up in a series of OPs to cover infantry avenues of approach that cannot be covered by the infantry defeating weapons of the tanks and TOWs. There will be a minimum of two men per OP. The carrier team will be one OP.

The squad leader must coordinate with nearby TOWs and tanks to locate their positions and routes between positions so as to avoid putting infantry positions where they could be run over or interfere with the firing of these weapons.

SCREENING AN AREA

A platoon with a screening mission is deployed to give early warning of any enemy approach and to identify the location of an enemy attack. It is usually deployed over a wide area and cannot concentrate enough force to delay the enemy. Because of the extensive area which a platoon would normally screen, it primarily deploys to detect enemy movement. It fights only for self-protection or within its capabilities to deny enemy reconnaissance troops close-in observation of the main body.

A screen is a series of Ops to observe enemy avenues of approach and areas between them. Patrols cover gaps and maintain contact between OPs. If enemy contact is made, the screening force normally withdraws maintaining visual contact with the enemy and calling supporting fire on him.

When given a screening mission, the mech platoon leader selects the general position for squad OPs and routes for patrols between OPs. Each squad may set up one or several OPs. The platoon leader will check all OP positions, realine them, and set up patrols as necessary.

Squads are usually deployed with their APCs and, because of the extended frontage, patrols are often conducted mounted.

Squad techniques for operating OPs and conducting patrols are covered in chapter 7.

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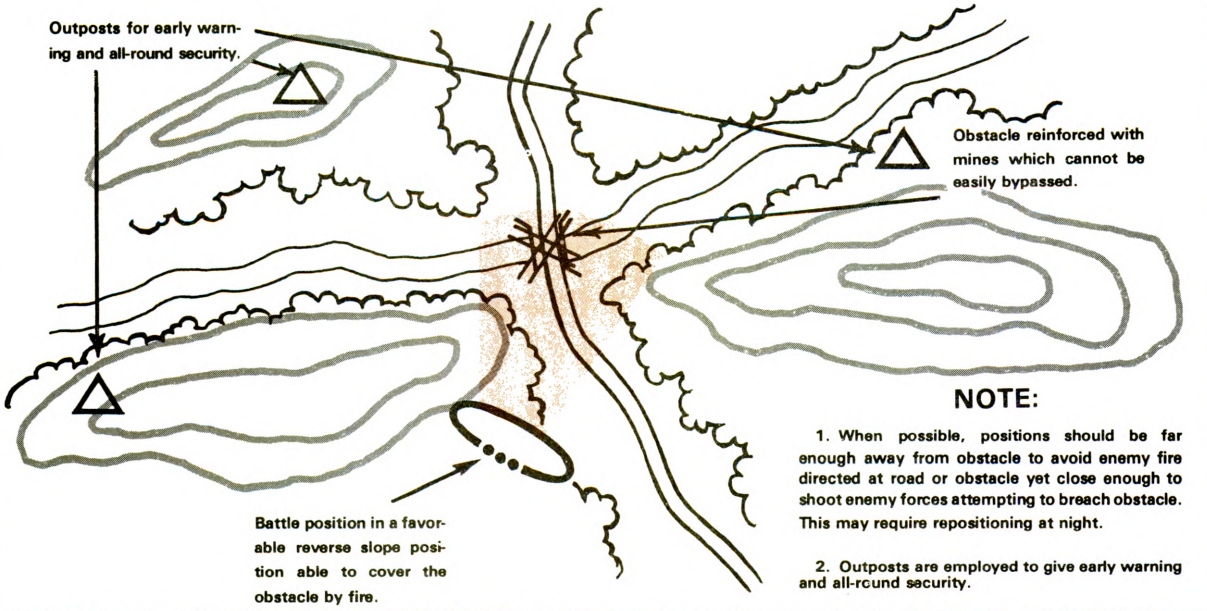
ROADBLOCKS

A roadblock is a defense of an obstacle. Roadblocks are set up where the enemy's movement is so canalized by terrain that he must clear the obstacle. The size of the force necessary for such a mission can vary from a rifle squad with one or two Dragons to a mechanized platoon or team reinforced with engineers, TOW sections, tanks, and other combat support and combat service support troops.

Troops and weapons are positioned so that they can cover by fire the road, the obstacle, the areas on both sides of the obstacle, and approaches to the obstacle. Pick a place and position your troops so they can hit an approaching enemy with surprise fire. When visibility is good, pick positions far enough from the obstacle to be outside the impact zone of enemy fire directed at the obstacle. When visibility is poor, positions are closer to the obstacle. A small security element may be where it can give warning of the enemy approach. Place guards to warn friendly troops of the obstacle and to keep unauthorized persons from going beyond it. The leader of the roadblock force maintains communication with his commander to notify him of enemy action and developments.

A unit with a roadblock mission defends it until authorized to withdraw.

The primary antiarmor weapon used for a roadblock is the obstacle itself. It can be a crater, blown bridge, or anything that stops vehicular movement. The obstacle must be tied-in to natural obstacles so it cannot be easily bypassed. Machinegun, indirect, and ATGM fire supports the roadblock by keeping the enemy from breaching the obstacle. A typical roadblock is set up like this.



NOTE:

1. When possible, positions should be far enough away from obstacle to avoid enemy fire directed at road or obstacle yet close enough to shoot enemy forces attempting to breach obstacle. This may require repositioning at night.

2. Outposts are employed to give early warning and all-round security.

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WITHDRAWING

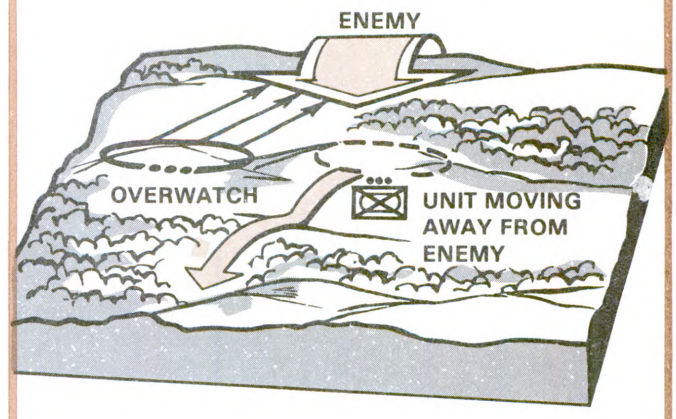
A unit is in contact with the enemy when it knows where the enemy is and can shoot at him (either direct or indirect fire).

Withdrawing from the enemy is the act of breaking contact with the enemy (disengagement) and moving to a new position. If the enemy is attacking or is expected to attack during the withdrawal, a **disengagement under pressure** is conducted. However, if the commander thinks that by using stealth he can disengage before the enemy can react, he can conduct a **disengagement not under pressure.** A platoon withdraws only when authorized to do so by the team commander.

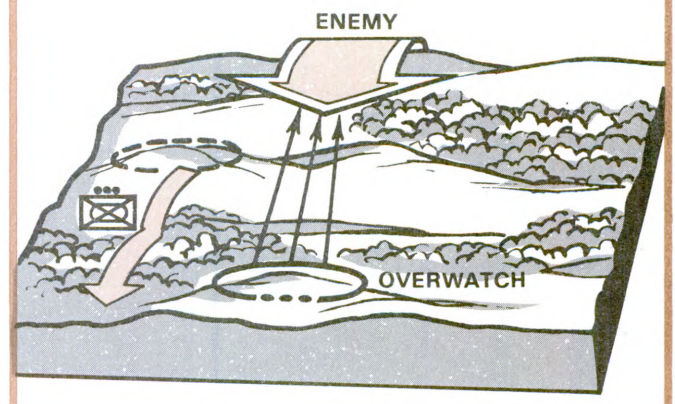
DISENGAGING UNDER ENEMY PRESSURE

Fire and maneuver is the basic method for disengaging under pressure. To disengage, use all available fire to stop the enemy and allow company teams to shoot at and maneuver away from the enemy. The team commander may maneuver his platoons and mass fire to stop or slow the enemy advance before beginning the movement away from the enemy. A heavy volume of antiarmor fire will force the enemy to dismount and slow his mounted advance. HE and smoke will also slow the momentum of a mounted attack and can hide the movement of the withdrawing units. Against an attack by dismounted troops, machinegun and indirect fire is added to stop the enemy infantry.

Overwatching units are used to allow maneuver of other units away from the enemy. One unit acts as the overwatch and holds off the enemy by fire or by holding terrain which blocks his advance while other units move back into overwatch positions.



When the moving unit gets to the next overwatch position, it in turn overwatches the movement of the forward unit.



This bounding overwatch in reverse is repeated until contact with the enemy is broken or until the unit passes a higher level overwatching force.

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When facing a mounted enemy attack, AT weapons are the main weapons overwatching the disengagement. TOWs normally move back first, followed by infantry, then tanks. However, in close terrain, a dismounted enemy attack, or with visibility limited, the tanks and TOWs may have to move first, covered by the infantry.

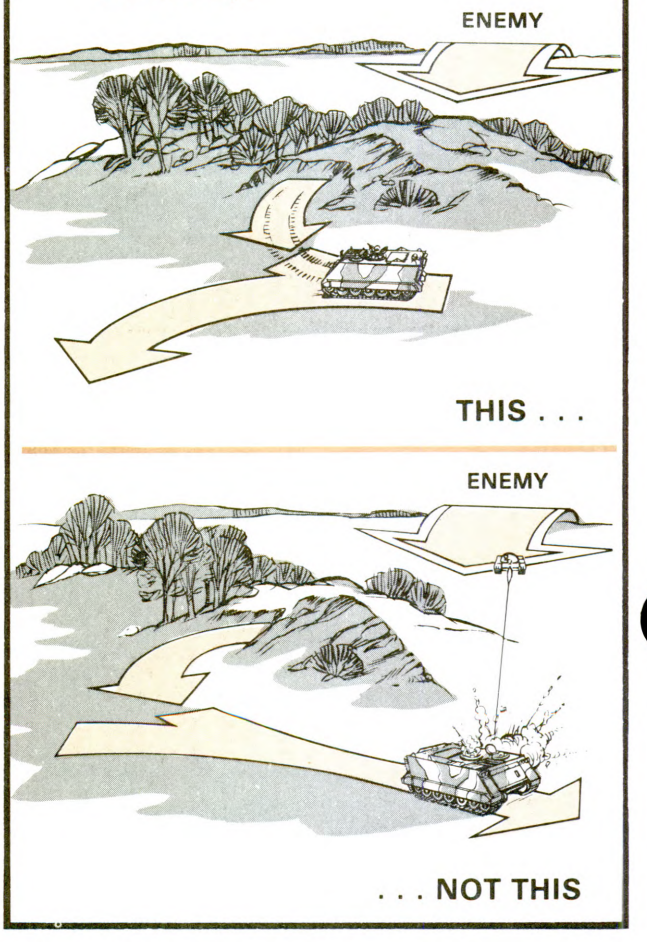
The tactics used by the mechanized infantry platoon to disengage from the enemy can differ according to the method of deploying the squads, the team scheme of withdrawal, and other factors; but some things apply in all cases.

- **Maximum use is made of the firepower of carrier teams to overwatch withdrawals.**

- **Men may mount the carrier through the combat access door** (particularly when enemy fire is falling in the area) to avoid destruction of troops and equipment in the carrier.



- **Carriers back out of position and move, keeping some terrain features between the carriers and the enemy.**



At times an APC may be backed into position to speed movement out of the position. When you do this, the cargo hatch must be closed if the cal .50 machinegun is pointed to the rear.

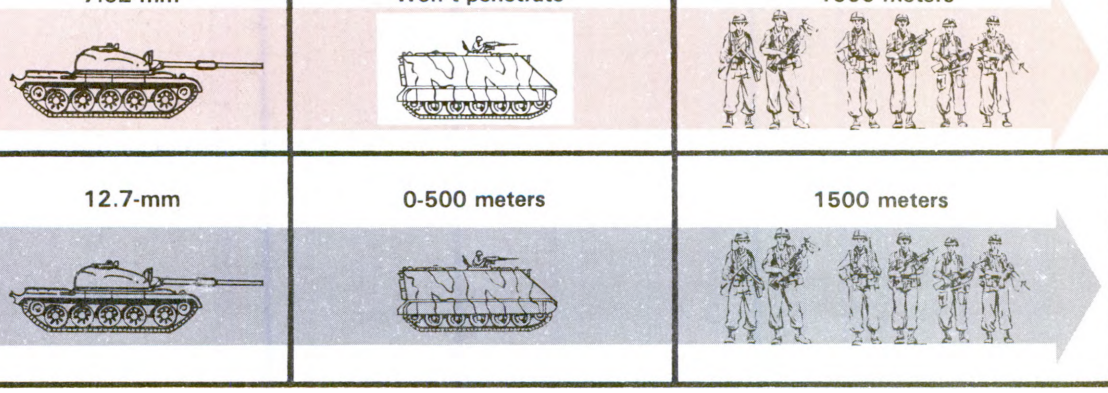
- **Keep the cal .50 machinegun and other carrier weapons pointed in the direction of the enemy. (Do not point the cal .50 over an unbuttoned cargo hatch.)**

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Each T-62 has a 7.62-mm machinegun mounted coaxially with the main gun. Normally, one tank in each platoon has a 12.7-mm machinegun mounted on the turret--primarily for air defense, but it is also effective against your carrier and troops.

EFFECTIVE RANGE OF T-62 MACHINEGUNS

	APC	INFANTRY
7.62-mm	Won't penetrate	1000 meters
12.7-mm	0-500 meters	1500 meters

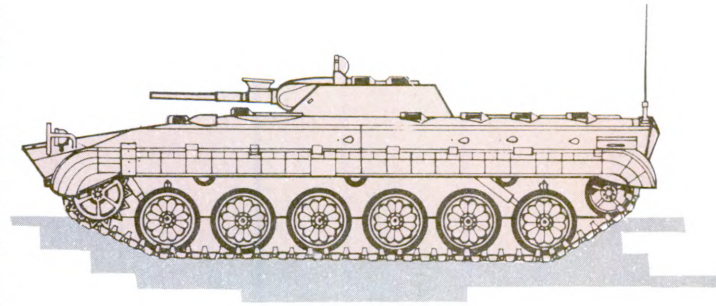


These facts about the T-62 carry an important message for platoon and squad leaders--

IF YOU EXPOSE YOUR CARRIERS, YOUR FIGHTING POSITIONS, OR YOUR MEN TO THE T-62, YOUR CHANCES OF SURVIVAL ARE VERY LOW.

Motorized infantry of the opposing force fight from the amphibious armored infantry combat vehicle, BMP. It mounts a 73-mm gun which has a 50/50 chance of getting a first round hit and destroying your fully exposed carrier at 800 meters. In addition to the main gun, there is a 7.62-mm coaxially mounted machinegun (1000 meter effective range against exposed personnel) and firing ports for each of the eight infantrymen who ride in the troop compartment. There are four firing ports on each side of the BMP and one in the rear. A PKM machinegun (7.62-mm), with an effective range of 1000 meters against personnel, fires from the front port on each side. The remaining ports accommodate the AKMS assault rifle (7.62-mm) which has an effective range of 300 meters.

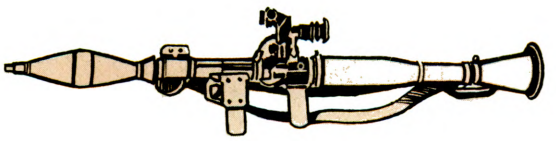
BMP



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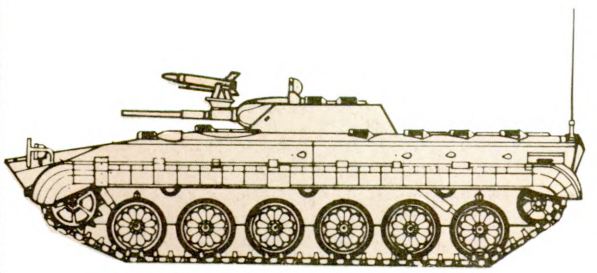
With its organic weapons and with the firing port weapons, the BMP is a very effective fighting machine. However, you can defeat it and the T-62 with LAW and Dragon fire and with mines, and greatly reduce its effectiveness by forcing the crew to button up against artillery, mortar or machinegun fire. The 40-mm HEDP round will also penetrate the BMP. A well trained gunner has a 50-50 chance of a hit at 200 meters. The HEDP round has less chance of destroying the vehicle, but it can kill the crew or stop the vehicle. Armor-piercing rounds from the cal .50 machinegun can also penetrate the side of the BMP if it is within 200 meters and if you have a good shot at it.

RPG



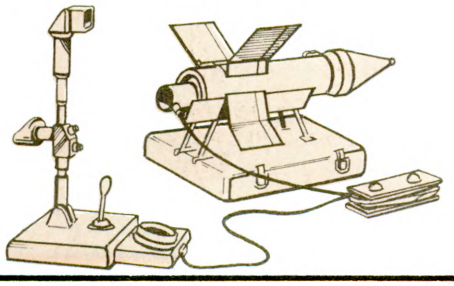
In addition to machineguns and rifles, the BMP squad has the RPG-7 antitank rocket with a 50-50 chance of a hit at 200 meters. This weapon will penetrate the M113A1. Defeat it by killing or suppressing the gunner.

BMP



Mounted on top of the BMP is a Sagger antitank guided missile (ATGM) launcher. Four missiles are carried inside each BMP, and one more can be mounted on the launcher. Saggers are wire-guided missiles, fired from a stationary position out to a range of 3000 meters. If your APC is stationary and exposed, the Sagger gunner has better than a 60 percent chance of hitting you with his first round from 1000 to 3000 meters. However, if you are hull-down, he has little chance of hitting you. Since it takes a Sagger gunner from 500-800 meters to gain control of the missile once he fires, his accuracy is not very good up to 1000 meters.

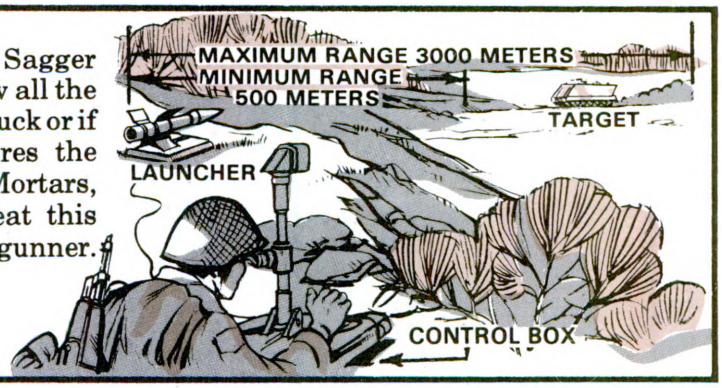
SAGGER



A Sagger can also be fired from a ground mount as accurately as when fired from the vehicle. The gunner can be up to 15 meters away from the launcher.

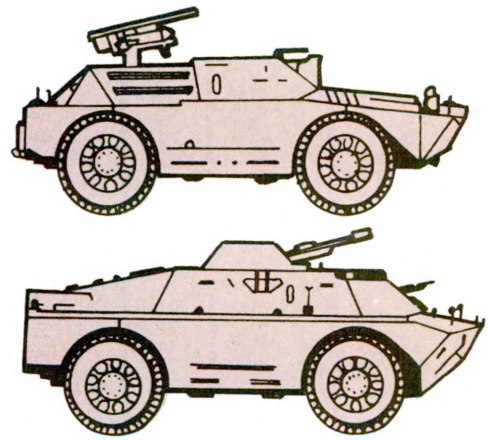
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As with our own ATGMs, the Sagger gunner must have a clear field of view all the way to the target. If you force him to duck or if you obscure his vision after he fires the missile, he will lose control of it. Mortars, artillery, and small arms can defeat this weapon by killing or suppressing the gunner. Smoke will obscure his vision.



Another vehicle that you may face is the BRDM which may be armed with Saggers, 7.62-mm, and 14.5-mm machineguns. The BRDM is normally used as a command, scout, or ATGM vehicle. Like the BMP, you can obscure the gunner's vision with smoke or suppress him with HE fire from FA or mortars. The ATGM gunner has a remote fire capability and may be up to 80 meters from his vehicle. This carrier is thin-skinned and can be defeated in the same way as the BMP.

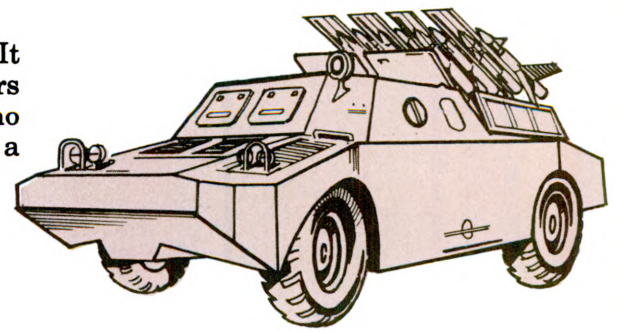
BRDM WITH AND WITHOUT SAGGER



In addition to the Sagger, the BRDM can be armed with the Swatter antitank guided missile.

This missile has a range of 3500 meters. It is not armed until it has flown 500 meters from the launcher. To date, there is no indication that it can be employed from a ground mount.

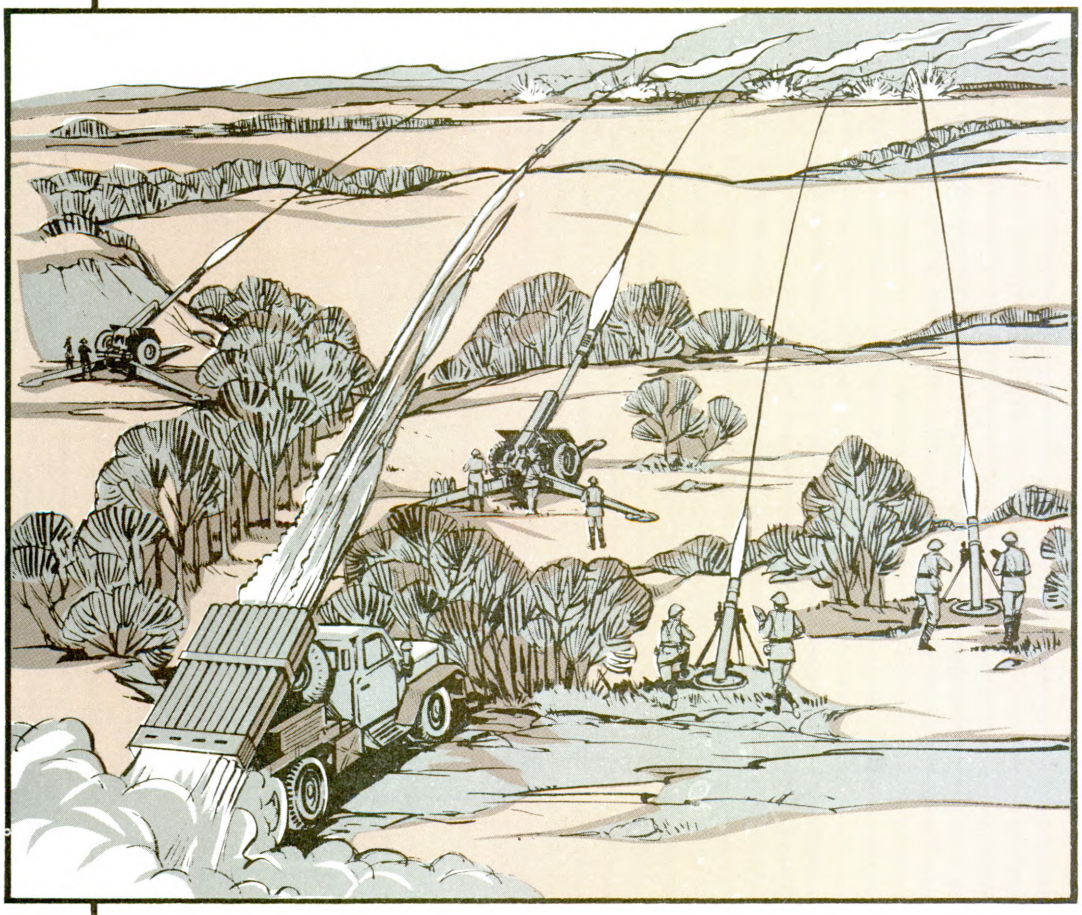
BRDM WITH SWATTER



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ARTILLERY AND MORTARS

The opposing force employs large quantities of indirect fire support which ranges from 120-mm mortars to 203-mm guns. His artillery guns can also be used as direct fire weapons. For area coverage, he also employs multiple rocket launchers. The most common is the truck-mounted 122-mm multiple rocket launcher, which can fire 40 rounds at once. This would completely saturate a platoon-size defense position.



To protect yourself from indirect fire you must use cover and concealment. When moving, use every fold in the ground that will keep the enemy from seeing you. When defending, select fighting positions that can be concealed. Whenever you stop and dismount, have your men dig in. A soldier in a foxhole is 10 times safer than a standing man when high explosive indirect fire impacts. Even if time is short, a hastily prepared shelter will provide a great deal of protection.

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The illustration below gives you an idea of the protection you get from a good fighting position if a barrage of VT-fuzed indirect fire goes off around a squad.

POSITION		APPROXIMATE NUMBER OF CASUALTIES
STANDING		
PRONE		
DUG-IN		

Of course, you will also encounter incoming artillery while mounted in your carriers. Assuming a battery fires five volleys, and the 30 rounds fall on your platoon--

The chances are less than 1 in 50 that one of your carriers will be destroyed--and even then, not all occupants are likely to be casualties.

Being mounted also gives you protection while you move out of the concentration if the mission allows.

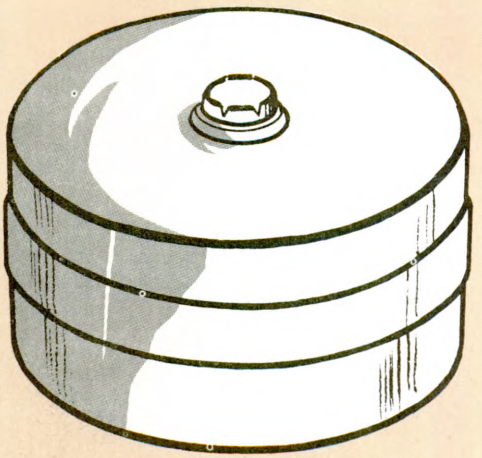
In summary, when the artillery or mortar rounds land, you want your men to be:

IN PRIORITY ORDER

1. **Dug in with overhead cover.**
2. **Mounted in their carriers.**
3. **Prone in whatever ground depression they can find.**

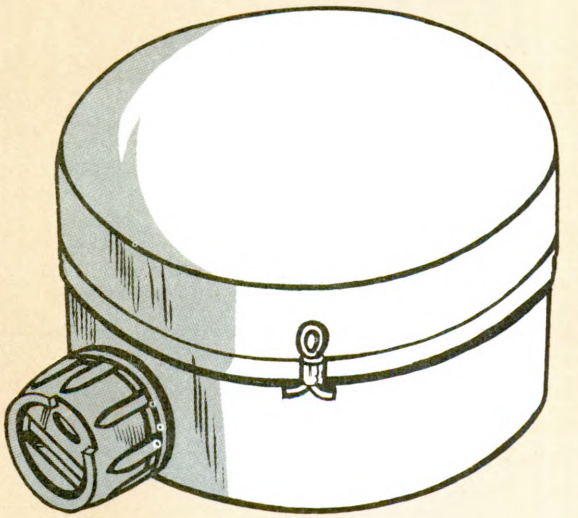
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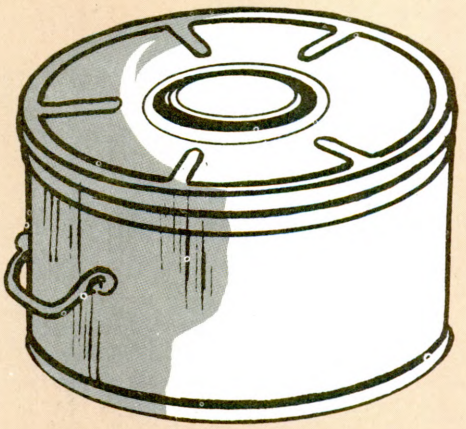
MINES



MINE, ANTITANK, PAPER, MODEL TMB-2 (USSR)

MINE, ANTIPERSONNEL, PMN, NONMETALLIC (USSR)





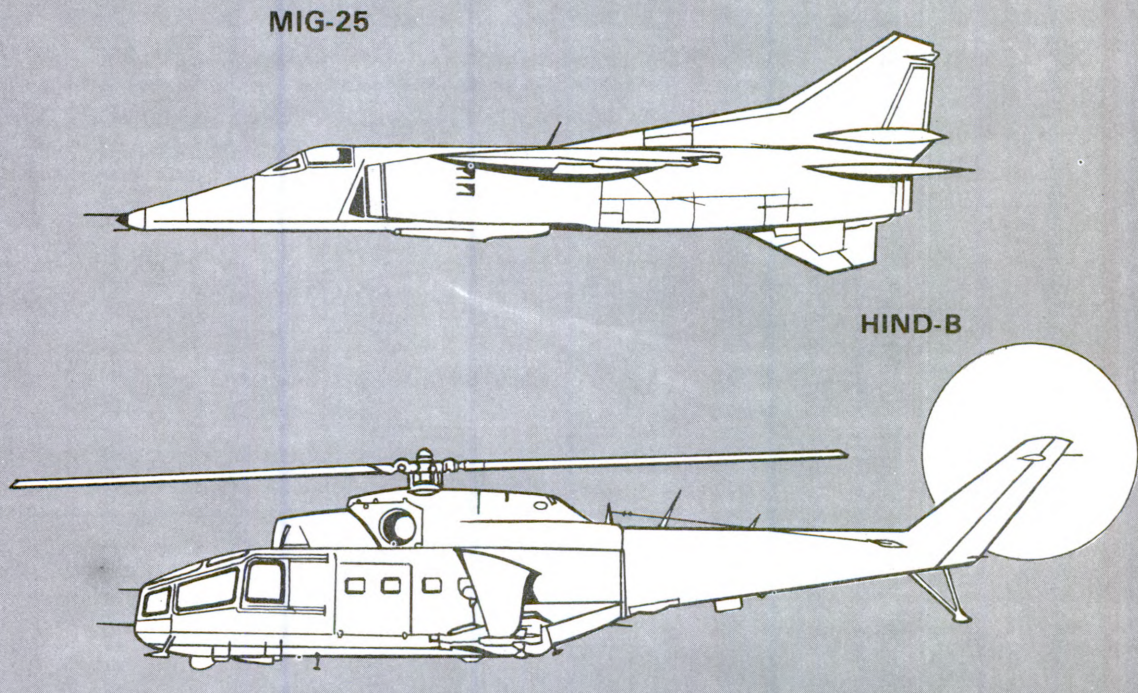
MINE, ANTITANK, METALLIC, MODEL TM-41 (USSR)

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All enemy combat troops are trained in the fundamentals of both offensive and defensive mine warfare. Their mines range from those designed to cripple a man to those designed to destroy a tank. Within a minefield they place both metallic and nonmetallic mines, antipersonnel and antitank mines.

Opposing force doctrine is similar to ours, in that most minefields are covered by direct fires and artillery. Should your platoon find itself in a minefield, withdraw out of it and attempt to bypass. If bypass is not possible, the mission may require that the minefield be breached (see App M).

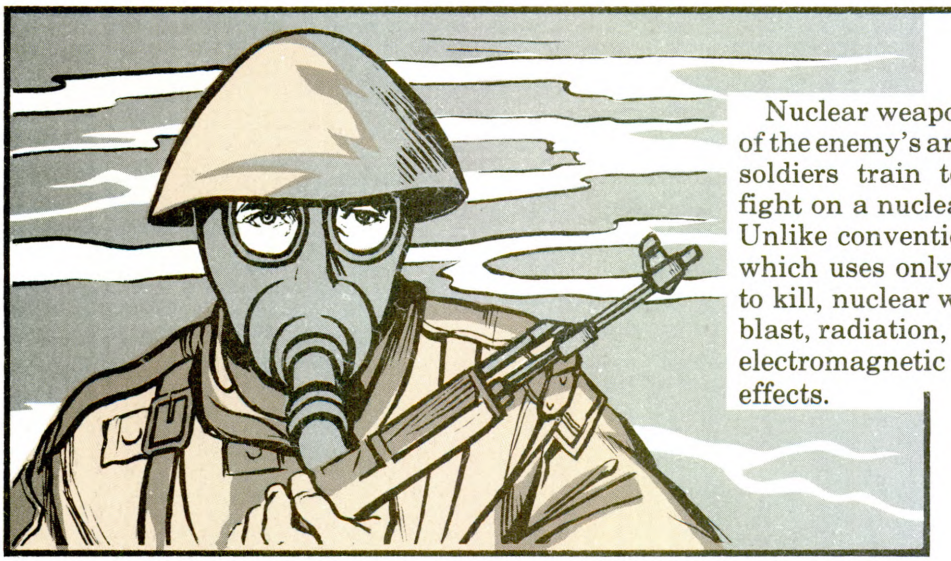
AIR SUPPORT



Modern aircraft are used by the opposing forces to hit targets beyond the range of artillery and sometimes to provide close support to ground forces. Attack helicopters armed with the Swatter missile are very effective against tanks and APCs that they can see. With their machineguns they are also capable of defeating exposed infantrymen. Your best protection against enemy aircraft is to avoid letting them see you--use cover and concealment.

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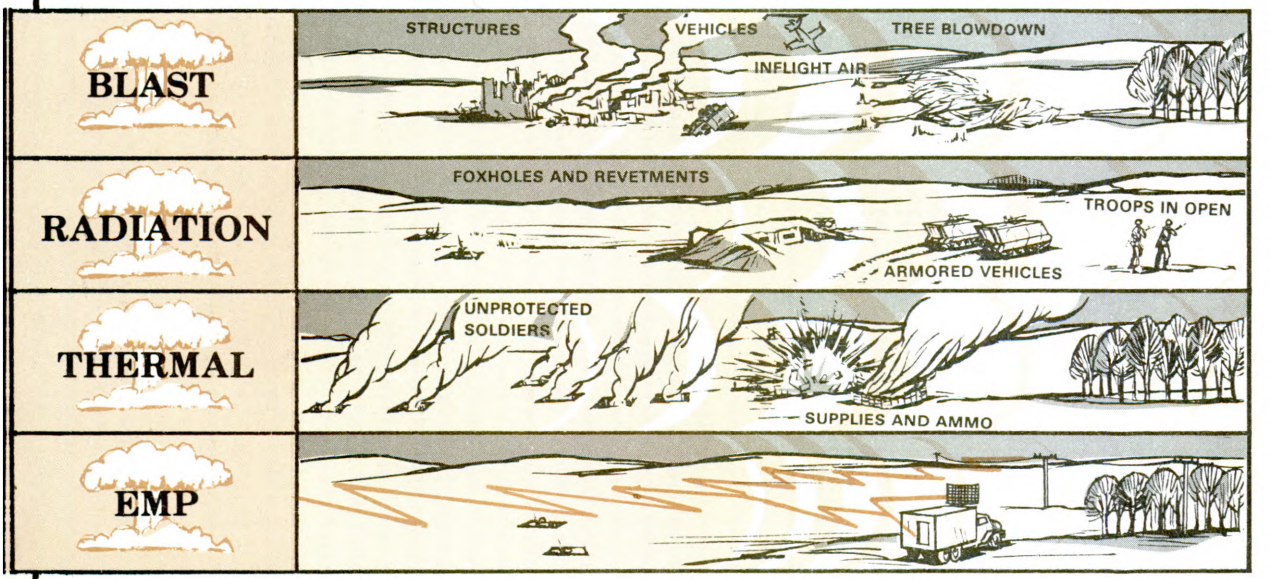
NUCLEAR, BIOLOGICAL, AND CHEMICAL WARFARE



Nuclear weapons are a part of the enemy's arsenal and his soldiers train to be able to fight on a nuclear battlefield. Unlike conventional artillery which uses only blast effects to kill, nuclear weapons have blast, radiation, thermal, and electromagnetic pulse (EMP) effects.

Blast, radiation, and thermal (heat) effects are the casualty producers. EMP can damage or destroy your radios.

Foxholes and APCs provide protection against the casualty producing effects, but your best protection is to conceal your unit so well that the enemy cannot find you. (See App G.) If he doesn't know where you are, he is not likely to waste a nuclear warhead.

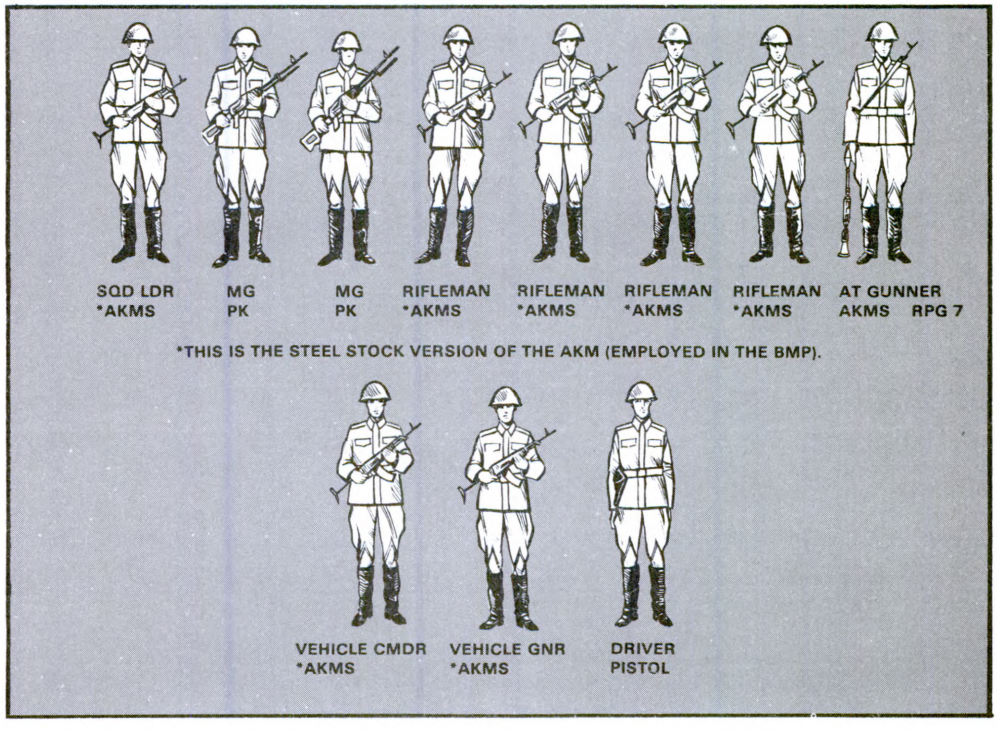


The opposing force also has a large arsenal of chemical weapons, and trains to fight in a chemical environment. Your soldiers must be trained in the detection of chemical agents, and the protective measures they must take to survive.

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HOW THE OPPOSING FORCE ORGANIZES

THE MOTORIZED RIFLE SQUAD, PLATOON, AND COMPANY



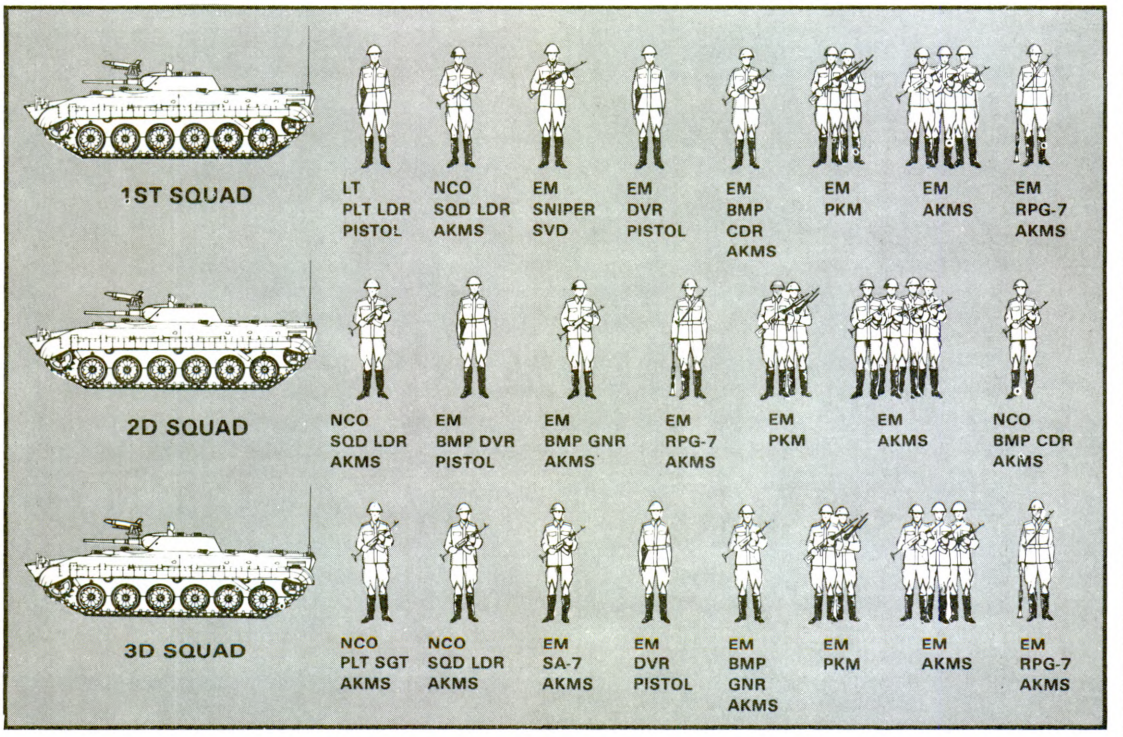
The squad has eight infantrymen and moves on the battlefield in the BMP. In addition to the infantry squad, the BMP has a crew of three--a vehicle commander, a gunner, and a driver.

The vehicle crew rides in the forward part of the BMP. They control movement of the carrier and fire the weapon systems organic to the vehicle. The eight-man squad rides in and fires from the passenger compartment in the rear of the vehicle. Each squad member sits in front of a firing port. Two large rear doors permit the squad to rapidly exit the vehicle.

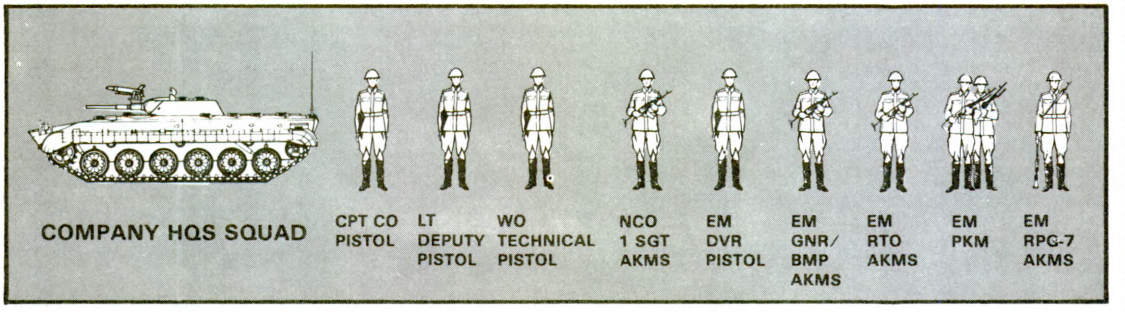
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The **platoon** has three squads with BMPs. The platoon commander rides with one of the three squads.

MOTORIZED RIFLE PLATOON



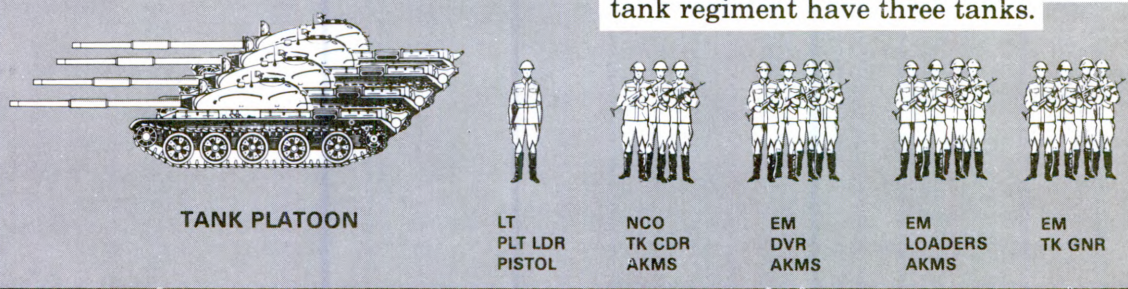
There are three SA-7 surface-to-air missile launchers in each company. Also, every squad has a two-man team (riflemen) qualified in firing the RPG-7. One rifleman in the first squad of each platoon is equipped with an SVD sniper rifle in lieu of the AKMS.



The company has three platoons. In addition to the nine platoon BMPs, the company commander and members of his headquarters have a BMP.

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Most of the time, a motorized rifle company operates with a platoon of tanks (T-62s). Threat tank platoons organic to the tank battalion of a motorized rifle regiment have four tanks per platoon. Tanks platoons of a tank regiment have three tanks.



WEAPONS SUMMARY

(Motorized Rifle Company with Tank Platoon)

Infantry Small Arms

Rifles AKMS 7.62-mm	79
Machinegun 7.62-mm	20
Coax Machinegun 7.62-mm	14
SVD Rifle 7.62-mm	3

Antiarmor

73-mm Gun (MBP)	10
Sagger (5 per BMP)	50
RPG-7	10
*SPG-9	1
*Suitcase Sagger	1
115-mm Tank Gun	4

*SPG-9 and manpacked (suitcase) Sagger may be attached to the company by the battalion commander.

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NOTES

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Section II.
UNITED STATES FORCES

COUNTERING THE OPPOSING FORCE

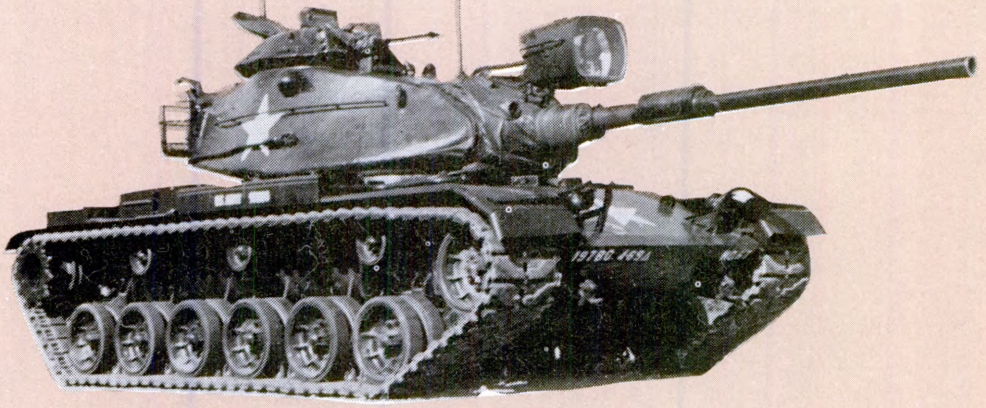
Having looked at some of the major weapons of the enemy and at a typical motorized rifle company, you can see that they fit together into an impressive tactical system that is effective against tanks and mechanized infantry from 0-3500 meters with their direct fire systems, and even further with artillery and tactical aircraft. But like any weapon system, you can defeat these weapons if you use common sense and employ your own systems to their best advantage.

THE COMBINED ARMS FORCE

Mechanized infantry does not fight by itself--instead, it fights as part of a combined arms force with tanks, TOWs, field artillery, engineers, tactical aircraft, attack helicopters, and air defense artillery.

US WEAPONS

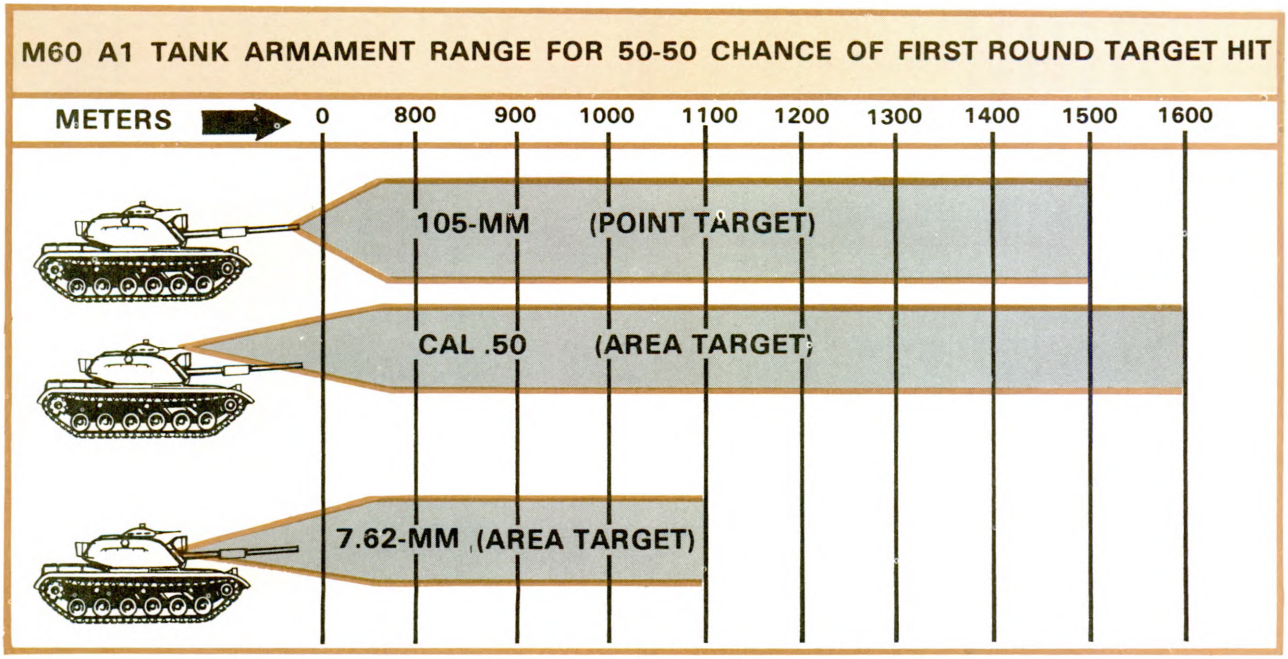
M60A1



For each weapon or system that the enemy has, there is a similar system in our combined arms force to beat him.

Armed with a 105-mm main gun, a 7.62-mm coaxially mounted machinegun, and a cal .50 turret-mounted machinegun, the M60A1 is the tank found in most armor battalions.

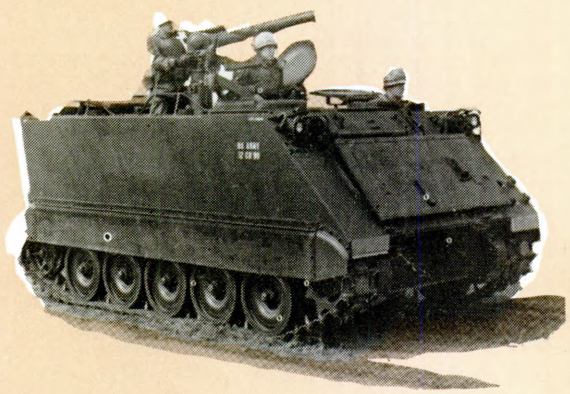
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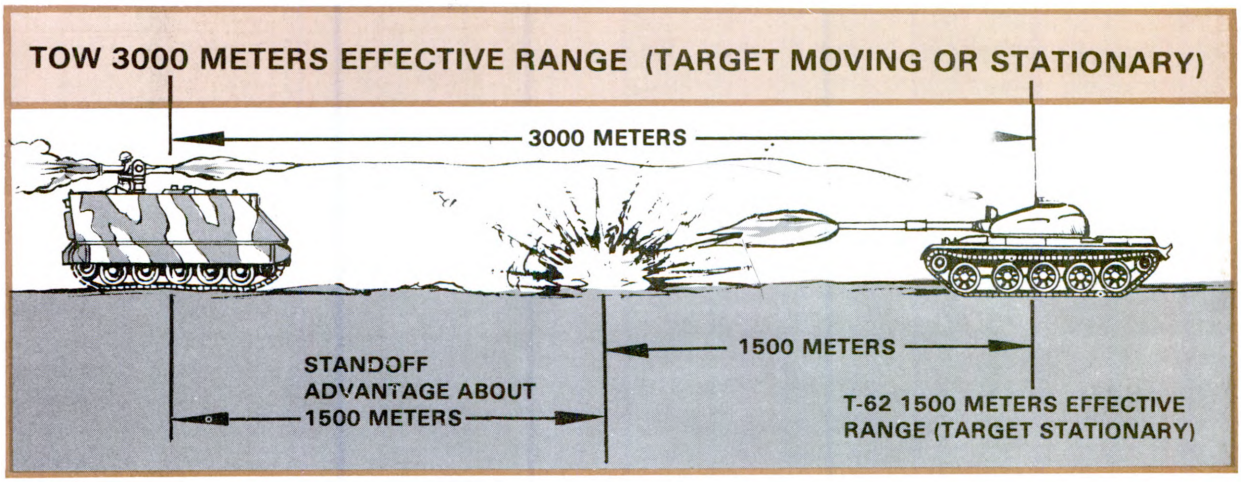
The M60A1 can move fast and hit hard. It has the firepower to destroy any known armored vehicle in the world. Since infantry, tanks and TOWs usually fight together as a company team, you can expect to be working with at least a platoon of tanks. To move and fight at the same pace as the tank requires tactical know-how, initiative, good judgment, and boldness from the leaders of mechanized infantry platoons and squads.

TOW

The tube-launched, optically-tracked, wire-guided (TOW) antitank guided missile provides the combined arms team with a long-range armor-killing weapon. It has a very high hit probability throughout its full range of 65 to 3000 meters. In mechanized units it is mounted on a modified M113A1, but it can also be ground-mounted. It is easier to operate and more accurate than the enemy's Sagger and Swatter. It protects itself from the T-62 by using cover, concealment, and its standoff advantage.

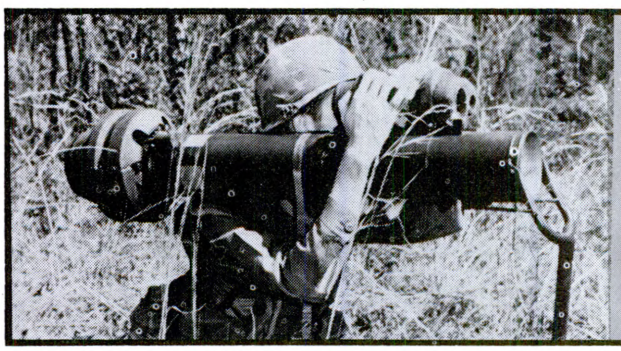


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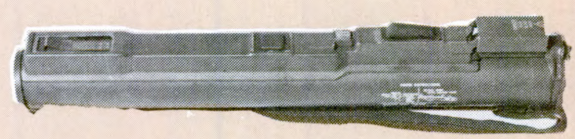
Of course, the 1500 meter effective range of the T-62, like our own M-60 tank, implies a 50-50 chance of a **first round hit.** The tanks' chances get much better on subsequent rounds--even at ranges beyond 1500 meters. The TOWs, and your own carriers, can't neglect to use cover just because the enemy tanks are beyond 1500 meters.

DRAGON



The Dragon is a man-portable, shoulder-fired, medium antitank weapon (MAW) that gives you the ability to destroy any known enemy armor from 65 to 1000 meters. A good gunner will hit his target 7 times out of 10 shots. It is an important weapon in the team because it complements the fire of tanks and TOWs and provides the infantry platoon an organic, highly effective tank killing capability. It does not, however, have the standoff advantage of the TOW; so firing from covered, concealed positions is even more important.

LAW

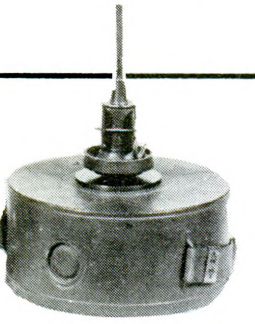


The M72A2 Light Antitank Weapon (LAW), like the enemy's RPG-7, is a close-in antiarmor weapon. It is issued as a single round of ammunition. It is the only antiarmor weapon in the team that can shoot tanks at ranges less than 65 meters. If only one round is fired, it has a 50/50 chance of hitting a moving tank at 200 meters but less than a 50/50 chance of kill. That means that one round will usually not be enough to destroy a tank, so plan on multiple shots. (See Appendix B, Weapons.)

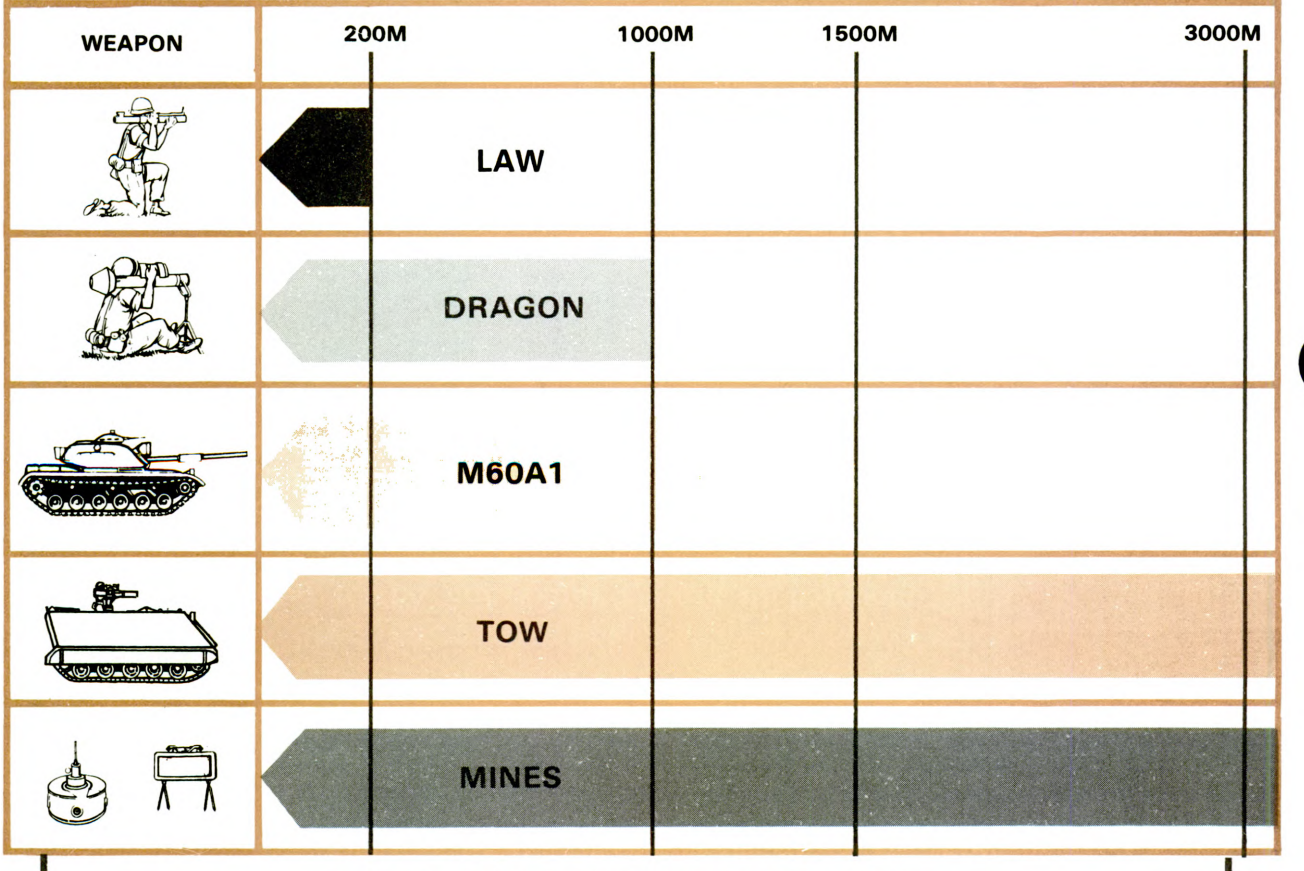
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MINES

Your company team can draw a wide variety of antitank mines to slow, canalize and stop opposing force vehicles. Mechanized infantry will often be responsible for laying them, particularly protective minefields. (See App M.)



COMBINED ARMS BATTLEFIELD ANTITANK COVERAGE IN DEPTH



INFANTRY DEFEATING WEAPONS

- M60
- M203
- Dragon
- Cal .50
- Grenade
- Mines
- M16

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Mechanized infantry has the capability to kill tanks, but its primary role in a combined arms force is to destroy or suppress enemy infantry and antitank gunners. The infantry defeating weapons organic to the platoon and squad give you the firepower to do this. Each is discussed in detail in App B.

WHY THE TANK-INFANTRY-TOW TEAM WORKS

A single weapon or unit probably would not defeat a determined attack by a large force of tanks and infantry. Likewise, a single weapon or unit would have difficulty assaulting a well-prepared defensive position that included both tanks and infantry.

Our units are equipped and are task organized to reinforce the strengths and offset the weaknesses of one another.

MECHANIZED INFANTRY CAN--

- **Fight mounted to protect tanks and ATGM from dismounted infantry and AT gunners.**
- **Move mounted as rapidly as tanks, swim streams, and negotiate some soft surfaces restrictive for tanks.**
- **Suppress and kill soft targets with machineguns and small arms while moving.**
- **Kill tanks and thinner skinned vehicles with Dragons out to 1,000 meters and LAWs out to 200 meters.**

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Dismount to . . .

- *clear woods, buildings, obstacles, and dug-in positions.*
- *conduct infiltration attacks.*
- *conduct limited air assault operations.*
- *secure prisoners.*
- *dig in and hold ground against dismounted infantry assaults.*
- *provide security--patrols and OPs.*
- *ambush mounted or dismounted enemy.*
- *lay mines.*

THE VULNERABILITIES OF MECHANIZED INFANTRY ARE:

- APCs can be destroyed by ATGMs, AT guns, tanks, BMP cannon, mines, or direct hits by artillery or airstrike.

When dismounted and dug in, they are vulnerable to . . .

- *small arms fire, if frontal cover is inadequate.*
- *tanks, if improperly employed on forward slopes with inadequate cover and concealment.*

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- *artillery, if overhead cover is inadequate.*
- *NBC attack.*

When dismounted and NOT dug in they are particularly vulnerable to . . .

- *tanks.*
- *artillery and mortar fire.*
- *NBC attack.*
- *tac air.*
- *small arms.*

The tank platoon has five tanks manned by 20 men. It is organized into a heavy section of three tanks and a light section of two.

THE STRENGTHS OF TANKS ARE THEIR--

- **mobility, armor protection, and rapid firepower.**
- **ability to kill tanks and soft targets at long, medium, and short ranges.**
- **relative invulnerability to artillery and small arms.**

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THEIR WEAKNESSES ARE THEIR . . .

- vulnerability to ATGM, AT guns, tanks, and mines.
- slow speed in crossing water barriers.
- difficulty in locating infantry and AT gunners in close terrain.

The TOW section consists of two TOW squads, each with a TOW launcher mounted on an APC. The TOW squad consists of the leader, gunner, assistant gunner, and driver. One TOW section is organic to each mech infantry company. The antitank platoon of a mech battalion has an additional six sections (12 TOWs). USAREUR scout platoons of mech and tank battalions have four additional TOWs.

THE STRENGTHS OF THE TOW ARE . . .

- mobility equal to the tank and mech platoons.
- high probability of kill against armored vehicles out to a range of 3,000 meters.

ITS RELATIVE WEAKNESSES ARE . . .

- vulnerability of ATGM, AT guns, tanks, BMP cannon, mines, or direct hit by artillery or airstrike.
- gunner exposed while firing and therefore vulnerable to suppression by small arms, artillery, and mortar fire.
- slow rate of fire.
- currently it has no night sight.

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As you can see, the major components of the combined arms force complement each other. However, by themselves they cannot get the job done--*artillery, air defense, tac air, attack helicopters, and engineers* are all essential members of the force and are addressed throughout this manual. Make sure you understand how they are employed and what they can and cannot do.

RULES FOR FIGHTING THE BATTLE

Throughout this manual you will read about many considerations that you must understand when you fight. However, there are four basic rules that **always** apply and that you must keep foremost in your mind. These rules a can be stated in four words . . .



Cover. The first rule is that you should always move on covered routes and fight from covered positions. Cover provides protection from fire.

Concealment. The second rule is to remain concealed until it is absolutely necessary to break into the open in the attack or counterattack. Concealment provides protection from observation.

Suppression. Rule number three is to suppress enemy gunners that you cannot destroy. Suppression prevents the enemy from delivering effective fire against you.

Teamwork. The last rule is to train and control your men and weapons so that they function as a team. Each man and each weapon must perform at maximum effectiveness, and they must work together as a squad, as a platoon, and as a part of the company team. For example, when your platoon or squad is defending against a tank and motorized infantry attack, you will not be successful if every man in your unit fires at the same target. If you function as a team, your Dragon gunner(s) will be destroying tanks or BMPs; the machinegunners, riflemen, and grenadiers will be distributing their fire so as to hit enemy infantrymen throughout your sector; tanks will hit armor at midranges; TOWs will hit armor at long range; and artillery destroys, smokes, or suppresses the enemy overwatch and helps you destroy dismounted infantry.

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TASKS FOR PLATOONS AND SQUADS

Modern warfare is a complex, deadly contest between the attacker and defender. Mechanized infantry must be prepared to accomplish a wide range of tasks in all conditions of weather and visibility, in both the offense and the defense.

As part of the company team **in the offense,** your platoon or squad will have to..

- **Move to contact . . .**
  - *overwatching when tanks lead.*
  - *leading mounted when*
    - no tanks are available.
    - crossing water obstacles.
    - moving up to a dismount point to clear the route.
  - *leading dismounted to clear the route for tanks and APCs.*
- **Conduct actions on contact**
- **Attack mounted--**
  - *following tanks.*
  - *without tanks.*
- **Attack dismounted--**
  - *following tanks.*
  - *without tanks, but supported by tank, TOW or carrier fire.*
- **Breach or reduce obstacles.**

Consolidate and reorganize after an attack, if not immediately continuing on.

In the defense, it will have to . . .

- **Destroy the enemy in designated sectors of fire with Dragon and machinegun fire, supplementing the fire of tanks and TOWs.**
- **Repel enemy mounted attacks on avenues of approach that have short fields of fire and cannot be adequately covered by tanks and TOWs.**
- **Repel enemy dismounted attacks.**
- **Protect tanks and TOWs from enemy infantry, especially during limited visibility.**
- **Operate OPs and conduct patrols and ambushes.**
- **Construct obstacles and lay mines.**
- **Prepare strongpoints and fight from them as part of a larger force.**

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LIMITED VISIBILITY OPERATIONS

The tasks which you must perform have to be done when visibility is limited as well as when it is good. Smoke, dust, fog, snow, rain, and darkness limit visibility on the battlefield. The enemy trains under these conditions and plans to use them to gain an advantage. Your troops must know how to fight when they cannot see with the unaided eye.

You must know how the Threat operates, how he is organized, and how he is equipped. Understanding the capabilities of the enemy allows you to identify his weaknesses and maximize your strengths.

LEADERSHIP

Because they must be prepared to fight anywhere, under any conditions, your soldiers deserve and demand STRONG LEADERSHIP.

Training your men to do their jobs and function as a team is your responsibility--the platoon and squad leader. How to do that is outlined in Appendix O.

As a leader in a mechanized infantry platoon, you must attain a level of competence that is unmatched in history. Not only must you know how to train and employ your unit both mounted and dismounted, you must also know how it interacts with the other members of the combined arms force and how each member of the force contributes to winning the battle. This means that in addition to knowing what your men and equipment can and cannot do, you must know the capabilities and limitations of TOWs, tanks, attack helicopters, USAF aircraft, artillery, and engineers. Because you are a leader, you must understand how to apply all of this knowledge. The combined arms force is designed to move rapidly about the battlefield and you will not have time to sit down and think through every situation. Well rehearsed SOPs and thoroughly trained troops, squads and platoons who can act instantly to short, verbal orders are absolutely essential to winning on the armored battlefield.

As you train and when you fight, keep in mind that even if your platoon or squad is tactically proficient it will be successful only if you make sure that your men and equipment are taken care of properly. It is your responsibility to insure that each soldier's personal needs are met, that he has the equipment to do the job you tell him to do, and that his weapons and equipment are in good working order.

Great demands are placed on the physical stamina, discipline, and resourcefulness of your men. No other forces, other than those which directly support them, share their hardships--nor can other arms as readily match the infantry's unique adaptability to any battlefield. Your job is to SET THE EXAMPLE. If you demonstrate mental and physical toughness as well as technical and tactical proficiency, your men will follow you and get the job done in any situation.

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NOTES

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CHAPTER 2

ORGANIZATION AND OPERATION OF THE PLATOON AND SQUAD

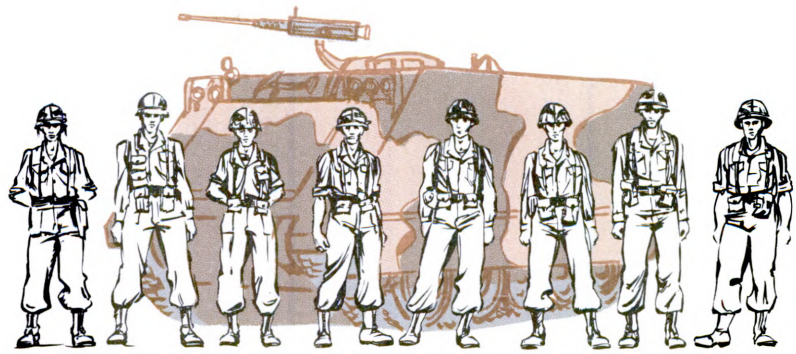
Section I.

ORGANIZATION

THE PLATOON

A mechanized infantry platoon has four M113A1 armored personnel carriers (APCs). The platoon leader and his headquarters operate from one of the APCs. Each of the other APCs is a fighting base for a mechanized infantry squad.

A typical mechanized infantry platoon headquarters (HQ) is organized like this:



*The platoon sergeant is part of the platoon HQ, but he does not ride in the HQ APC.

**The assistant platoon sergeant is the cal .50 machinegun gunner on the HQ APC.

***The FO team comes from the fire support team (FIST) that is supporting the company.

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An FO, his RATELO, and a medic are habitually attached to the platoon for combat.

Armament in the platoon consists of three (four in some units) Dragon trackers, four cal .50 machineguns, five M60 machineguns, 32 rifles, and six grenade launchers (M203). LAWs, grenades, and mines are issued as required by the situation.

Communications equipment in the platoon consists of an AN/GRC-160 radio in each APC; a squad radio (transmitter AN/PRT-4 and receiver AN/PRR-9) in each squad and two in platoon headquarters; and two TA-1 telephones in the platoon headquarters and one per squad.

The platoon sergeant rides with one of the squads--usually that which is third in the order of march so that he can help control the trailing part of the platoon.

The Dragon trackers and two of the M60 machineguns are organic to the platoon HQ. As the TOE designates no men in the platoon whose primary job is to man these key weapons, the platoon leader assigns them to squad for them to employ, or keeps them under his direct control. This enables him to tailor the firepower of the squads to the mission, the enemy, and the terrain.

Gunners for the Dragons and the M60 machineguns must be selected by the platoon and squad leaders. To get maximum effectiveness from these weapons, select men who have proven (in training or in combat) that they are good with the weapon and make them "designated gunners." For example, if one of your riflemen hits the target every time he fires the Dragon, and you know that he can be counted on to be steady during a fire fight, then he should man the Dragon whenever you plan to use it.

Remember that the M60 machinegun is a crew-served weapon. It takes at least two men to keep the gun in action. Therefore, once you decide who your "designated" machinegunners are, select another rifleman to act as the second man on each gun. He is in effect the assistant gunner. Make him and the gunner a buddy team.

THE SQUAD

The mechanized infantry squad at full strength has 11 men. It is organized to make maximum use of the carrier and of the weapons assigned to the squad. Although the squad will move and fight mounted whenever possible, it must always be ready to dismount and fight. When it is necessary to dismount, the squad fights as two teams--a CARRIER TEAM and MANEUVER TEAM.

The **carrier team** consists of men employed on or close to the carrier, while the **maneuver team** operates away from the carrier to perform those tasks that require dismounted infantry.

As long as the cal .50 machinegun is mounted, the **carrier team** consists of at least two men--a team leader/gunner and a driver. Other members of the squad can be assigned to the carrier team based on the situation. For example, the platoon leader or squad leader may decide that, based on the mission, the terrain, and the enemy, it would be better for one of the M60 machineguns and a Dragon to be part of the carrier team.

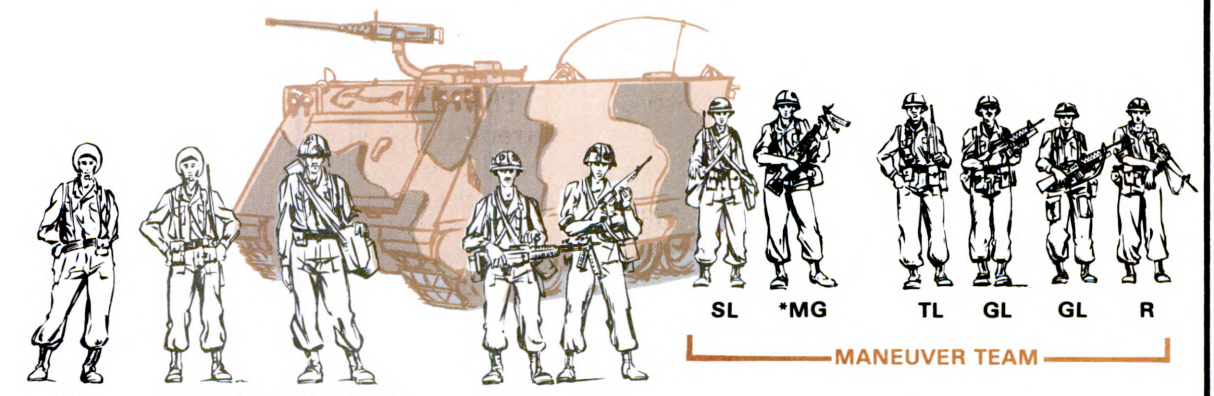
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The men and weapons assigned to the carrier team are controlled by the carrier team leader/gunner who is usually the more experienced team leader in the squad. The weapons are employed either on or close to the carrier (except for the cal .50 machinegun which stays mounted most of the time).

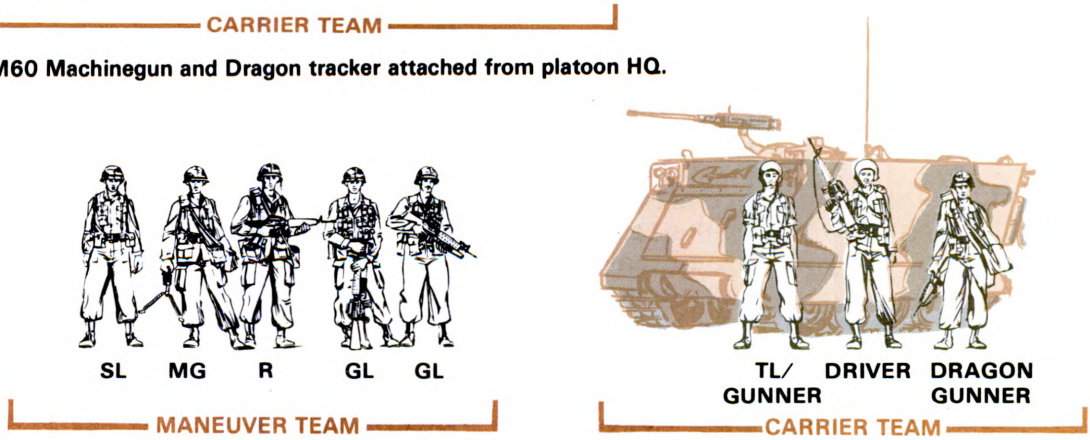
The **maneuver team** consists of all squad members who are not assigned to the carrier team. The squad leader normally moves with and controls the maneuver team.

Shown below are two examples of how a squad may organize. The organization of the teams in a squad depends on the strength of the squad, the mission, the terrain, the enemy, guidance from the platoon leader, and the weapons the squad takes with it.

FULL STRENGTH SQUAD



*M60 Machinegun and Dragon tracker attached from platoon HQ.



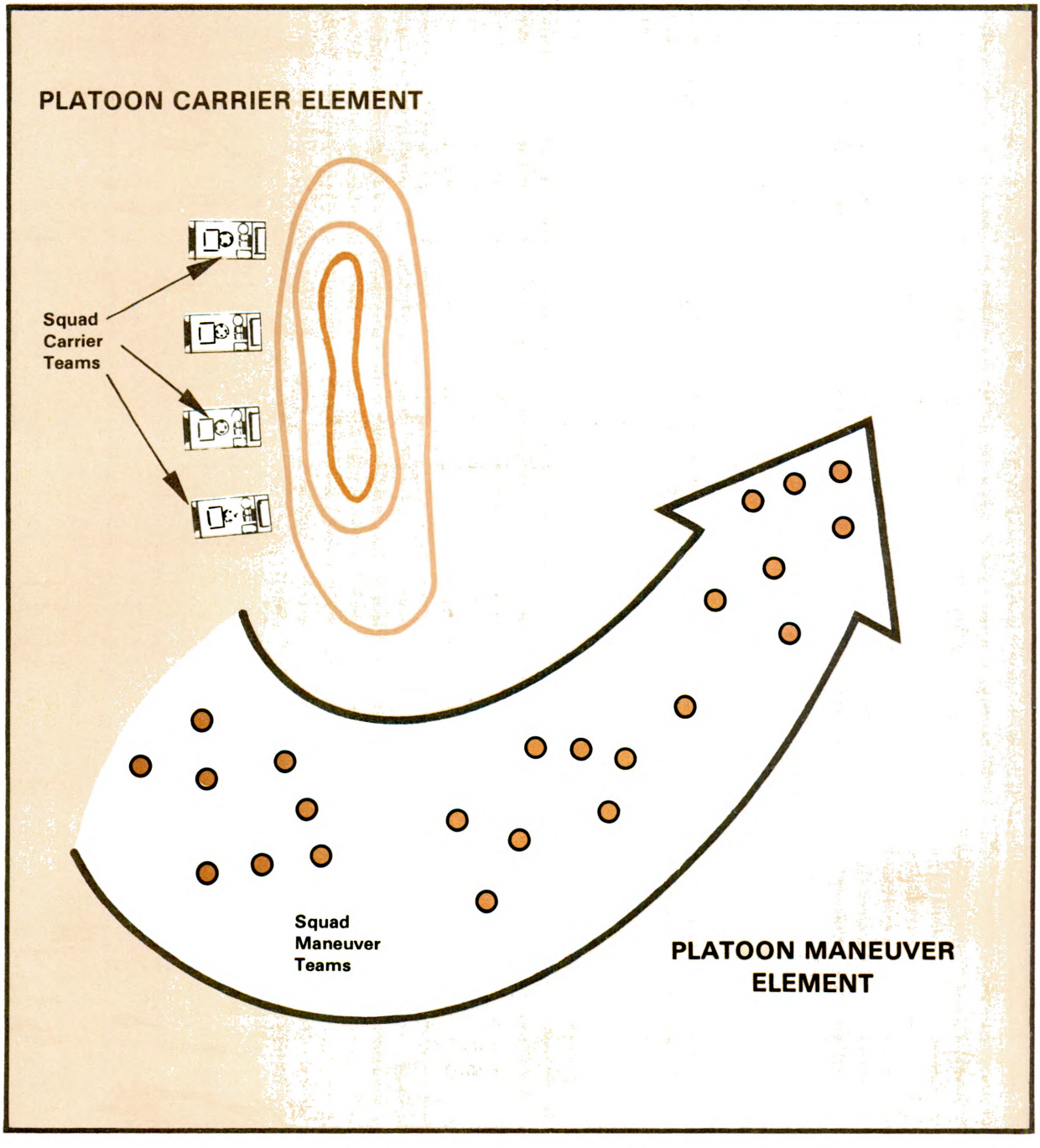
UNDERSTRENGTH SQUAD

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ORGANIZATION OF THE PLATOON

As long as all of the squads remain mounted and are all under the platoon leader's control, the platoon fights as a single, mounted force.

If one or more of the squad maneuver teams dismount, the platoon then has two elements--a **maneuver element** (the dismounted maneuver teams) and a **carrier element** (the carrier teams).



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ORGANIZING UNDERSTRENGTH PLATOONS AND SQUADS

Note that one of the examples on the preceding pages shows an understrength squad. Platoons and squads will not always be at full strength. Nevertheless, the mission (both in combat and in training) can still be accomplished if understrength units are organized with these rules in mind:

- **KEEP KEY LEADERSHIP POSITIONS FILLED.**

  Always maintain a chain of command--platoon leader, platoon sergeant, squad leader, and carrier team leader/gunner.

- **MAN THE MOST POTENT WEAPONS FIRST.**

  Take full advantage of available firepower. Before each mission, carefully consider how you should employ your Dragons, machineguns, and grenade launchers.

The platoon must also have a plan for organizing when it does not have all four APCs. Since you cannot put two full-strength squads on one APC, you must cross-load the men and equipment of the disabled or missing APC among all of your vehicles. Normally, the squad leader of the missing carrier rides with the platoon leader. This has two advantages--the squad leader can still get his orders from the platoon leader and the platoon leader's APC serves as the point on which the squad members assemble if the platoon dismounts.

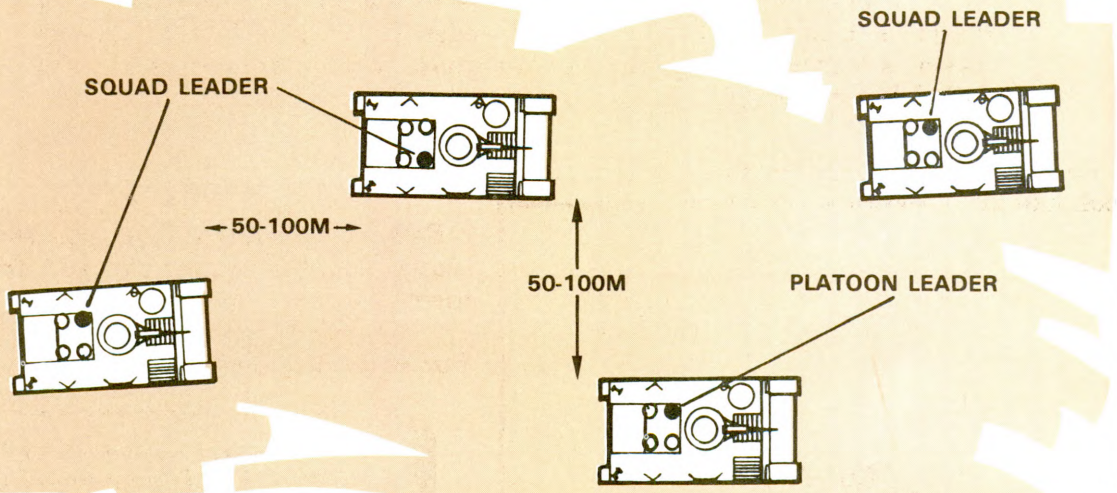
HOW TO ORGANIZE TO FIGHT MOUNTED

On the modern battlefield, mechanized platoons can expect rapid and frequent movement. As they move, they must be constantly prepared to fight from the open hatches of their carriers. They must also be able to fight mounted while attacking or defending. This means that platoon and squad leaders must organize the men in their carriers so they can shoot sustained, effective fire from the carriers while moving. Aimed fire from a moving carrier is not accurate, so it is best to shoot the M60 machinegun, the dual-purpose weapons, and rifles firing automatic from the open hatch.

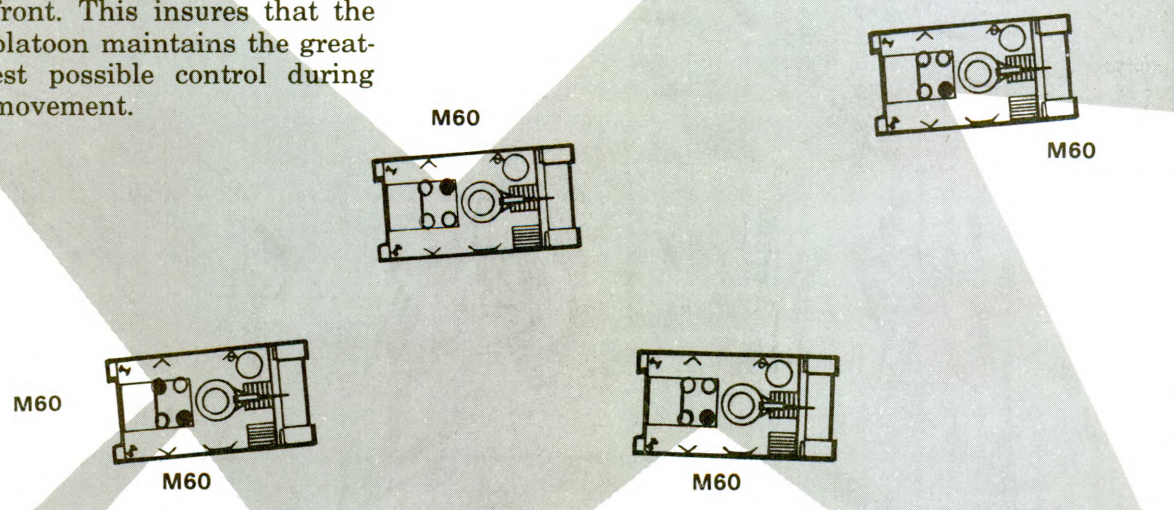
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Each man who rides in the carrier is given a specific task and told where his position is in the carrier. The squad leader stands either in the left or right front of the cargo hatch dependent upon where his carrier is in the platoon. The squad leader in the lead APC normally stands in the left front so he can reach his driver if the intercom goes out.

For example--



From the above diagram you can see that the squad leader rides where he can observe the APC that is to his front. This insures that the platoon maintains the greatest possible control during movement.



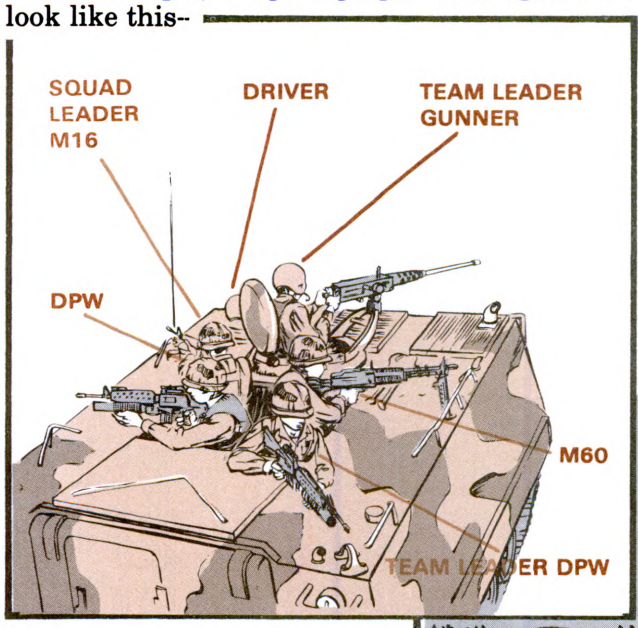
An M60 machinegun is positioned opposite the squad leader so that it can cover the squad's primary area of responsibility.

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Note that the platoon leader retains one of his M60s under his control. This insures that during movement his APC can also put out a heavy volume of fire if required. Since the last vehicle has a large responsibility for security (flank and rear), the platoon leader gave the trail squad an extra M60.

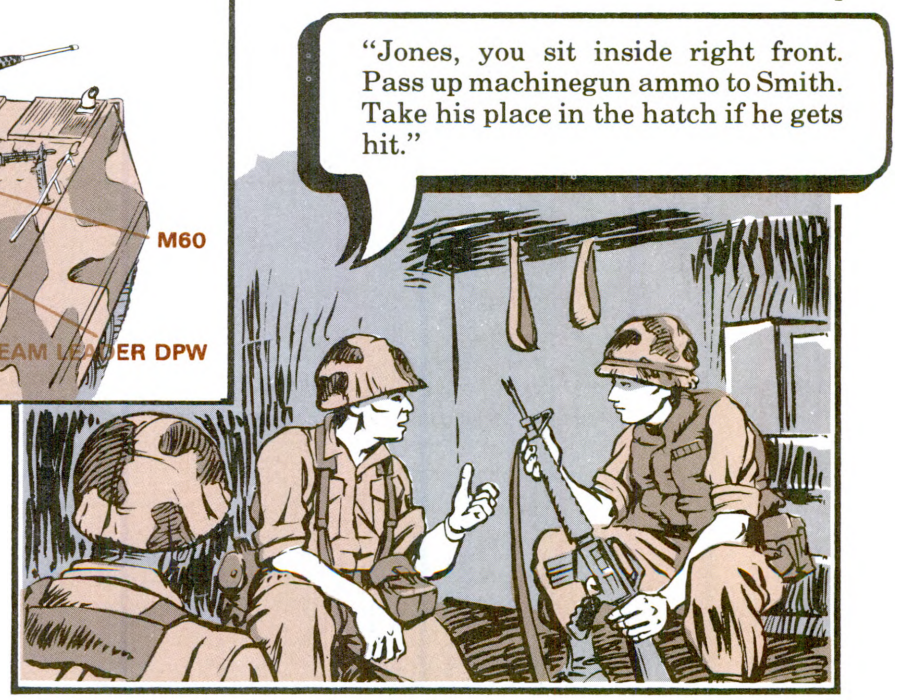
The second team leader in each squad fights mounted from the rear of the cargo hatch diagonally across from the squad leader. He fires one of the squad's dual-purpose weapons. From this position he can observe the action as it develops so that if the squad has to dismount he will need only minimum instruction from the squad leader. The other corner of the cargo hatch is manned by the other dual-purpose weapon gunner (unless the squad has two M60s).

For example, a squad prepared to fight mounted might look like this--



Remaining members of the squad are seated inside of the carrier and told what their jobs are.

For example--



Since the Dragon is bulky and hard to move around inside a loaded troop compartment, the Dragon gunner sits by the ramp. This allows him to dismount rapidly if required.

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Section II.
TROOP LEADING

Troop leading is the process a leader goes through to prepare his unit to accomplish a tactical mission. It begins when he is alerted for a mission. It starts all over again when he gets a different mission--it never ends. Listed below are the steps in the troop-leading process. They are listed so that you will see how they fit together. In combat, you will rarely have time to go through each step in detail. Nevertheless, a good leader automatically checks them off in his mind so that he is sure that nothing was forgotten.

STEP 1--RECEIVE THE MISSION.

If possible on receipt of a warning order, but certainly not later than when given the full order, the leader thinks through his mission to be certain he understands what is to be done and plans the use of available time. Often, a most critical resource when you have a new mission is TIME, especially daylight hours, in which to prepare.

STEP 2--ISSUE A WARNING ORDER.

Issue a warning order immediately following receipt of a warning order from higher headquarters. Tell your men what the mission is, when it is to take place, what initial preparations they should make, and when you plan to issue your detailed plan. This permits best use of available time to plan and prepare.

STEP 3--MAKE A TENTATIVE PLAN.

If you know the mission and the terrain, you can make a quick decision about how your unit can accomplish its mission. This is a tentative plan that you may change if necessary when you go through the remaining steps. It gives you a start point that can be used as a basis for coordination, reconnaissance, reorganization, and movement.

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STEP 4--INITIATE NECESSARY MOVEMENT.

This step is more often applicable to platoons than it is to squads as only on rare occasions does a squad move any distance independently from the platoon. Frequently, the company commander will get the platoon leaders together, take them to a position overlooking the area in which they will operate, and issue the order. Rather than let the company sit around waiting for its leaders to return, he may order the platoons to start moving toward the new location. When this happens, the platoon leaders need to have someone who can take the movement instructions back to their platoons and start them moving while they (the platoon leaders) reconnoiter. As the platoon sergeant usually stays with the platoon when the platoon leader leaves, the assistant platoon sergeant can go with the leader and take his instructions to the platoon.

STEP 5--RECONNOITER.

To make the best use of your men and weapons, you must see and evaluate that terrain on which they will fight. There will be times when you can only make a map reconnaissance, but if any time at all is available and if you have the first four steps inhand, get out on the terrain. It is during this reconnaissance that you confirm your tentative plan or modify it to magnify every advantage of your weapons and afford maximum protection for your troops. If you can see only part of the terrain, then make your detailed plan only for that part of the operation.

STEP 6--COMPLETE THE PLAN.

Based on the reconnaissance, you may or may not alter the tentative plan, but you certainly will add detail. In the defense you can now decide exactly where to position your weapons and how you will tie the defense together. If you are moving to contact, you can decide how to move. In the attack you can decide exactly how to seize the objective.

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STEP 7--ISSUE ORDERS.

Platoon and squad orders are issued orally. A platoon leader will issue an attack order from a vantage point that overlooks the terrain whenever possible. In the defense he will try to issue the order on the position from which the platoon will defend. The squad leader rarely has the opportunity to give his attack order from a position that allows his men to see the ground. However, he should make a terrain model for his squad to look at while he gives the order. Like the platoon leader, the squad leader can often issue the defense order on the defensive position.

When issuing orders, make sure that each man knows how you expect to accomplish the unit's mission and how he fits into the plan. You should also tell them what to do if you lose communication during the battle.

STEP 8--SUPERVISE AND REFINE.

After issuing the order, you must supervise to make sure that your men are making the necessary preparations to get the job done. Are they drawing the right equipment; is maintenance being performed on the carriers; are weapons ready; if you assigned special tasks, are they being accomplished?

Once the operation has begun, you must see that the plan is followed and be prepard to refine your plan as the situation develops. You must continually supervise and refine throughout the operation.

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Section III.
COMBAT ORDERS

This section addresses how you receive and issue orders for combat operations when you have a lot of time. As you read about how these things are done, keep in mind that you will not often have time to come up with a lengthy, detailed order. Your men must be ready (both physically and mentally) to change missions on a moment's notice.

The best way to insure that they can rapidly understand what you want them to do is to develop standing operating procedures (SOP) for different situations and use them when you train. SOPs tell your platoon or squad how to react and what you expect them to do. In other words, they keep you from having to issue the same instructions every time you want something done. This is very important because once the battle begins, success or failure often depends upon how fast you and your men can react to the orders you receive.

Although platoon and squad SOPs are essential for fast-moving operations, there will be situations where you have new men in your unit or you need to issue special instructions. The amount of time available to you will determine exactly how you issue your orders.

Even when you don't have much time, the ideas expressed in this section will help you issue clear and complete instructions.

THE WARNING ORDER

Initial instructions that you receive will usually be in the form of a warning order. In the warning order, you will be given enough information so that your unit can begin preparation for the operation. The warning order will tell you what the mission is, when it is to take place, what preparations you are to make, and when the operation order will be issued.

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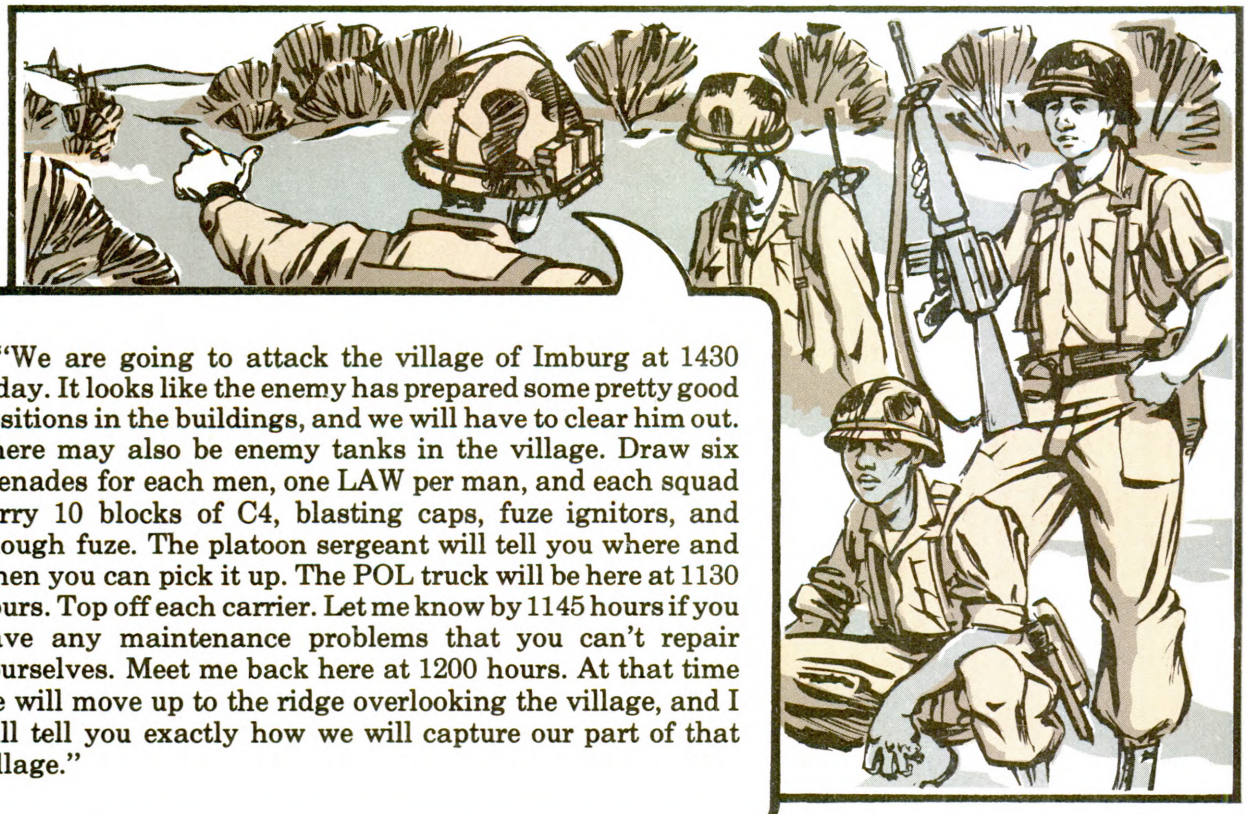
When you receive a warning order, quickly study it to see what you can do to prepare for action. Just by knowing the type of operation (mission), you can get a lost accomplished before you receive the operation order.

As stated earlier, develop SOPs that call for certain actions to be accomplished as soon as a warning order is received. For example, if the mission is to attack, the squads may automatically draw three HE grenades per man, two white smoke grenades per team leader, and three LAWs per fire team. Fire team leaders may load their M16 magazines with one tracer for each two rounds of ball ammunition, while riflemen load a one-to-four mix.

ISSUE YOUR OWN WARNING ORDER

As soon as you have thought about the warning order and decided what your men can do to get ready, assemble the squad leaders (if you are the platoon leader) or the entire squad (if you are the squad leader and the situation allows) and tell them what you want done. Do not waste time--get your men started in their preparation quickly.

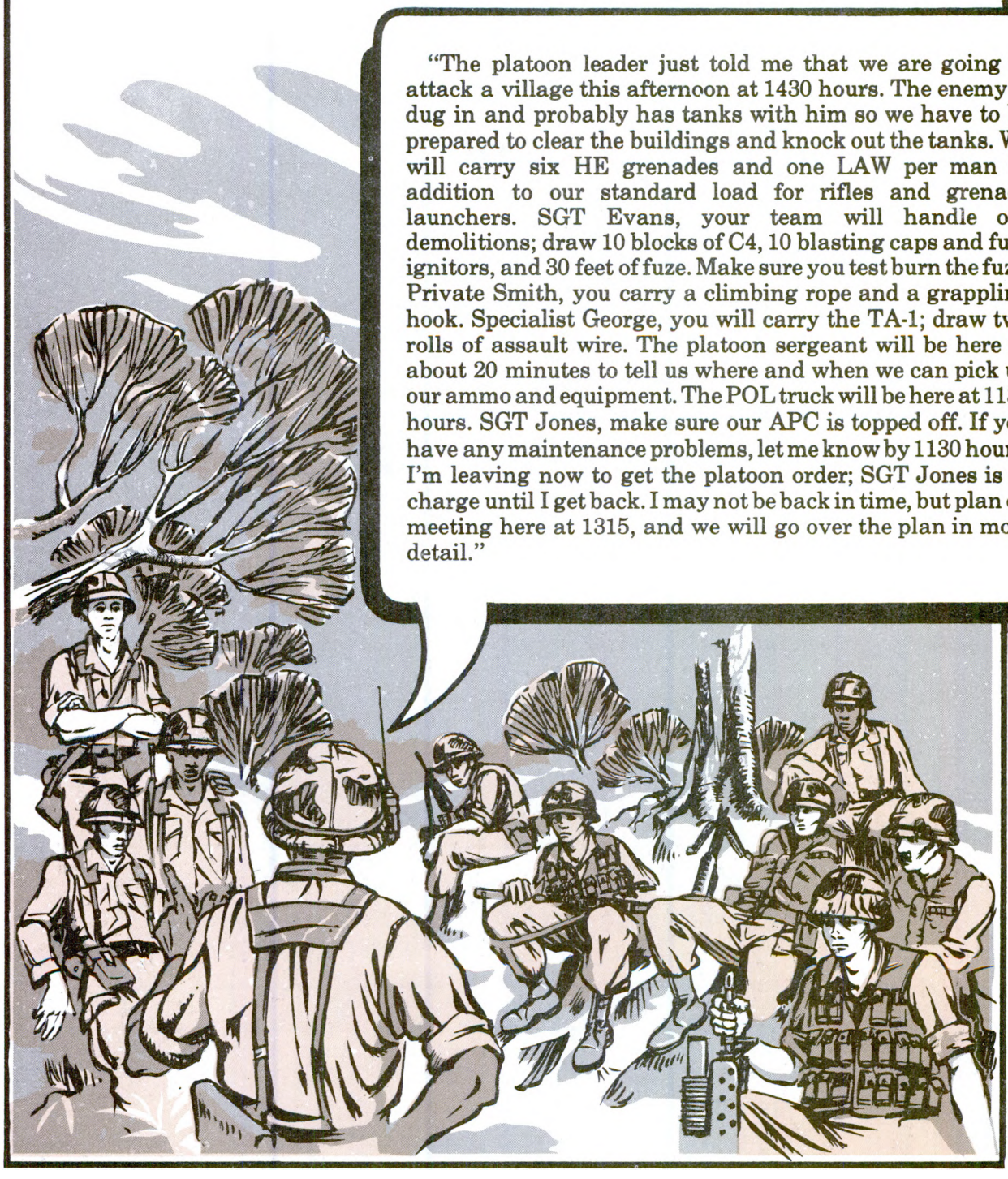
Based on the platoon SOP and any special instructions in the warning order, tell your men as much as you know about the operation, and if you need to assign special tasks tell them what you want done. Although you may not have all of the details at this point, the warning order you give will alert your men to the upcoming mission and they will be better prepared to fight. Fire team leaders are responsible for the preparations made by their men. They take notes on the squad leader's instructions to each man and see that the instructions are carried out.



"We are going to attack the village of Imburg at 1430 today. It looks like the enemy has prepared some pretty good positions in the buildings, and we will have to clear him out. There may also be enemy tanks in the village. Draw six grenades for each men, one LAW per man, and each squad carry 10 blocks of C4, blasting caps, fuze ignitors, and enough fuze. The platoon sergeant will tell you where and when you can pick it up. The POL truck will be here at 1130 hours. Top off each carrier. Let me know by 1145 hours if you have any maintenance problems that you can't repair yourselves. Meet me back here at 1200 hours. At that time we will move up to the ridge overlooking the village, and I will tell you exactly how we will capture our part of that village."

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SQUAD WARNING ORDER



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THE OPERATION ORDER

An operation order is nothing more than the presentation of the information and instructions needed to accomplish a specific mission. The amount of detailed information included in your operation order depends on the information you received and the time you have to prepare.

Below is an example of how you can organize your order to insure that you tell your platoon or squad everything they need to know to perform the mission you were given. The purpose of this format is to help you prepare your order. Use it as a checklist and remember that it is a guide. Give your order in language that your men can understand. For example, you may prefer to say, "Here's how we are going to get the job done," rather than "Execution."

SITUATION

Information on enemy and friendly forces to include the mission and intended actions of at least the next higher headquarters and unit on your left and right.

MISSION

What your unit (platoon or squad) is to accomplish.

EXECUTION

Your tactical plan for accomplishing the mission.

Tasks (missions) or each squad (the platoon order) or of teams and individuals (the squad order).

SERVICE SUPPORT

Administrative information to include the plans for ammunition, resupply, casualty evacuation, and rations.

COMMAND AND SIGNAL

Signals and other control measures to be used during the operation.

Where you will be during the operation and where the next higher leader will be.

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RECEIVING AN OPERATION ORDER

The most important part of receiving an order is a clear understanding of what your unit has to accomplish in relation to the ground and to the other platoons or squads. Unless you know exactly what you are supposed to do, what the other units are doing, and where and when these actions are to be done, your chances of success are greatly reduced. After hearing the entire order, don't leave until all of your questions have been answered.

THINK-THROUGH THE ORDER

As soon as you receive the order and understand the leader's plan, take a few minutes to go over the notes you took. As you think about the order, answer these questions:

- What MISSION(S) did I receive?
- How much do I know about the ENEMY?
- How does the TERRAIN and WEATHER influence the operation?
- What SUPPLIES or EQUIPMENT do I need? Do I need to assign SPECIAL TASKS to anyone?

Mission.

In analyzing your mission, identify exactly what your unit is to accomplish. Be sure you know how much time you have to prepare. Make sure you are aware of any restrictions or special tasks that apply to your platoon or squad.

A thorough understanding of the mission will allow you to establish a time schedule for your preparation. You will be told what time the operation is to begin and what time your unit must be ready to go. This allows you to allocate time to preparation for the mission. Identify the things that must be done to get ready and working backwards from the "ready" time, allow your men time to accomplish each task. This technique is call the **reverse planning sequence.** Here is how it might work for a squad leader:

Here is how. NEXT PAGE . . .

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it might work for a squad leader:

1420:	Platoon leader said to be ready.
1415:	Inspect assembly area.
1400:	Inspect squad.
1315:	Issue order to squad.
1300:	Finalize squad order.
1200:	Reconnoiter with platoon leader/receive order.
1100:	Issue warning order to squad.
1040:	Receive platoon warning order.

Enemy.

Develop the best picture of exactly where the enemy is located, what his strength is, and what kind of weapons and equipment he has. Tell your men as much as you know about how to destroy or suppress the kind of enemy you are likely to meet.

Sometimes the enemy in a certain area will use the same pattern over and over. For example, if you know that the enemy habitually ambushes in the vicinity of trail junctions, make sure that all of your men know about it.

Terrain and Weather.

Most decisions pertaining to route, objective, sectors of fire, positioning of key weapons, movement techniques, etc., are made by the platoon leader. However, both platoon and squad leaders must study every bit of ground if they are to properly employ their men and equipment and gain an advantage over the enemy. Proper use of terrain will:

- Provide cover and concealment before, during, and after the battle.
- Increase the effectiveness of your fire.
- Decrease the effectiveness of the enemy's weapons.

You must also understand how weather can influence your men. Cold, heat, rain, or snow can create problems if you don't prepare your squad properly.

Supplies, Equipment, and Special Tasks.

Look at your unit in light of the mission you are to accomplish. If you have been given a task that requires a special skill, such as setting demolitions to blow a building, do you know how to do it? Do you have the right kind

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of weapons, equipment, and supplies? If you feel you need help, or if you need something you don't have, tell your leader/commander.

ISSUING AN OPERATION ORDER

After you have received an operation order, thought it through, and prepared your own order, you must issue that order. Whenever possible, platoon leaders should issue their orders from a position that allows the squad leaders to see the ground on which they are going to operate.

Squad leaders should also try to issue their orders from vantage points that overlook the terrain. However, many times this will not be possible, and they will have to sketch the terrain on the ground. Terrain models are easy to construct and allow the leader to associate his order with terrain features so that each man will have an idea of what to expect once he gets on the actual terrain.



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REHEARSALS

If time is available before an operation, the squads should practice tasks they will perform. Noise and confusion will be so great during battle that success may depend on the men's confidence and ability to carry out their tasks. Rehearsals provide confidence and improve ability.

Rehearsals need not cover every step of the operation. Levels of training and leadership skills may make rehearsal of some steps unnecessary. Some key actions that may be rehearsed are:

- FIRE AND MANEUVER
- BREACHING A MINEFIELD
- ASSAULTING A TRENCH LINE
- BREACHING WIRE OBSTACLES
- ASSAULTING A BUNKER
- USING SPECIAL WEAPONS DEMOLITIONS
- DISMOUNTING UNDER FIRE

Remember, rehearsals are important, so conduct them over terrain resembling the operational area and under the same light and battlefield conditions expected during the operation.

INSPECTIONS

The final duty to perform prior to the actual conduct of any tactical operation is an inspection. A detailed and thorough inspection is absolutely necessary to insure that your men and equipment are prepared to execute the orders you have given. You must inspect at least:

- **WEAPONS**
- **AMMUNITION**
- **MISSION-ESSENTIAL EQUIPMENT (Demolitions, starlight scopes, etc.)**
- **ARMORED PERSONNEL CARRIERS (Make sure that carriers are topped off, maintenance has been performed, and the loading plan is correct.)**
- **CAMOUFLAGE**

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Time permitting, insure that only necessary equipment is carried. Be sure equipment is worn properly and is tied down so it does not rattle or fall off. In addition, check you men while checking their equipment. Are they physically prepared to undergo the tasks they must perform? Ask questions to insure they know their duties.

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NOTES

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CHAPTER 3
MOVEMENT

Section I.
GENERAL

Mechanized infantry units, because of the rapid pace of mobile warfare, spend a great deal of time moving. Although this chapter describes primarily how mechanized infantry platoons and squads move, keep in mind that they rarely move alone. As they habitually operate as part of a combined arms team, they move with tanks, TOWs, and other mechanized infantry units. Depending on the situation, you may be overwatching tanks as they lead, or tanks and TOWs may be overwatching you as you lead. The teamwork discussed in chapter 1 applies to how you move as well as to how you fight. In both the offense and the defense, platoons and squads move about the battlefield under one of two basic conditions:

1	Not in contact with the enemy.
2	In contact with the enemy.

This chapter tells platoon/squad leaders how to move under both conditions. The enemy and the terrain dictate how they must move in each situation. Strive to move without being seen. Exposure to enemy observation and fire MUST be minimized. That requires leaders to constantly think about the terrain because terrain is the best protection from the enemy's weapons. Make maximum use of available cover and concealment at all times. Hills, draws, depressions, woods, brush, and other natural features protect both mounted and dismounted elements.

USE THEM.

The heart of a mechanized infantry unit is the armored personnel carrier. Mounted or dismounted, you must always be thinking about how the carrier teams should be employed. Exploit the firepower and mobility that the APC gives you.

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Section II.
MOVEMENT WHEN NOT IN CONTACT

In most cases, a unit, not in contact, moving on the battlefield will find the enemy at a time and place of the enemy's choosing. To offset this advantage of the enemy, you must use movement techniques which will cause initial contact to be made with the least number of men and with the rest of your platoon or squad in position to fire or fire and maneuver in support of the element that makes contact. This means that when not in contact you should move with your smallest element leading--a squad leads the platoon (mounted or dismounted) and if the squad has two wedges in its maneuver team it is led by one of those wedges when moving dismounted. The rest of the unit follows behind the lead element and overwatches its movement. (Overwatch means being in position to immediately support the lead element by fire and/or maneuver.)

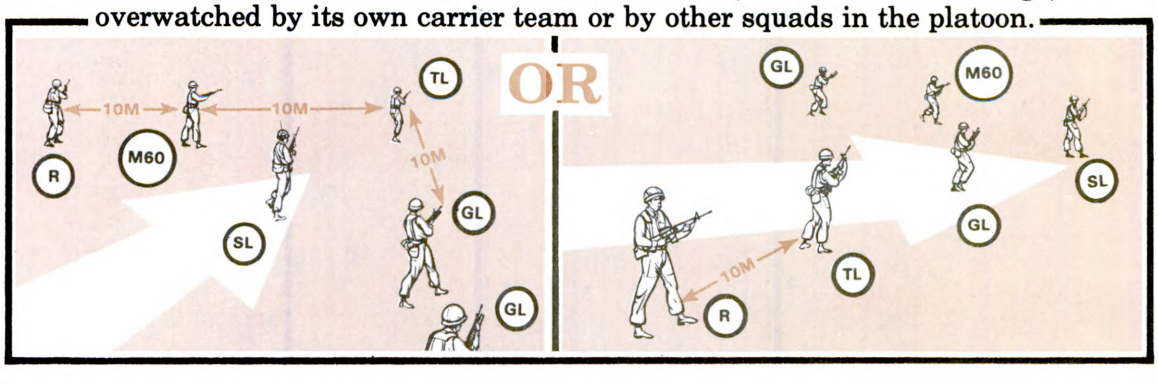
SQUAD ORGANIZATION FOR MOVEMENT

ENTIRE SQUAD MOUNTED.

As the squad operates as one team when mounted, it does not have the capability to overwatch itself. Therefore, it moves mounted as part of the platoon--either as the lead element or as a part of the platoon overwatch.

MANEUVER TEAM DISMOUNTED.

When the maneuver team has six men or less, it moves as one wedge, overwatched by its own carrier team or by other squads in the platoon.

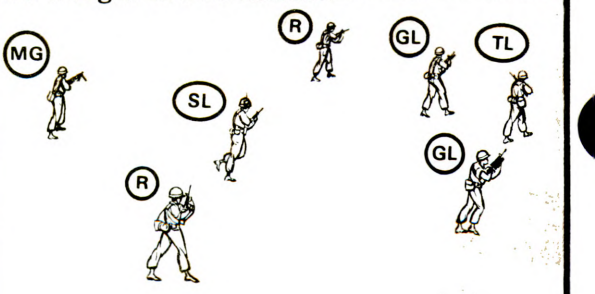


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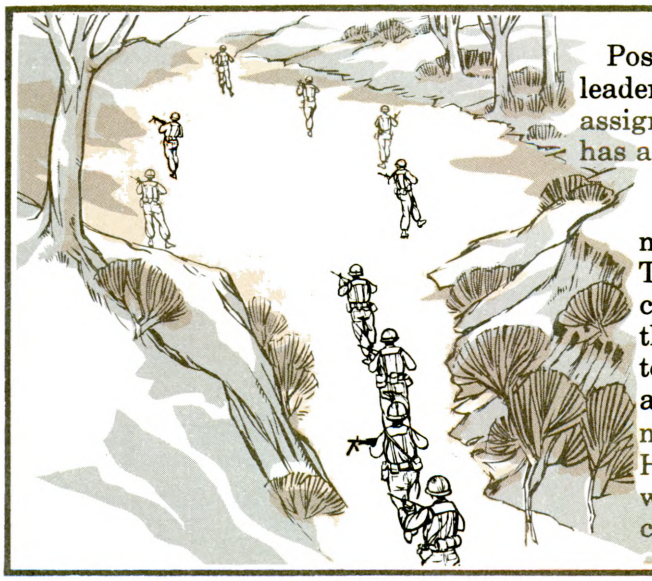
Note that in the example on the right, the squad leader actually leads the maneuver team wedge. He does so whenever speed of movement is important. For example, if the platoon has been ordered to dismount and quickly move forward to secure a bridge or if the maneuver team is moving rapidly to get into a position to support another squad by fire, the squad leader would lead. By leading he can rapidly choose the exact route, set the pace, and reduce reaction time simply by telling his men to, **"Follow me and do as I do!"**

If speed is not important, the position of the squad leader depends on his judgment as to how he can best control the maneuver team, maintain visual contact with the platoon leader, and navigate (if his squad is leading). Note, however, that in each example a leader is the first man in the wedge. This serves two purposes. First, the lead man is the base for the other team members during movement. If he moves right, they move right. If he stops, they stop. Secondly, the lead man is the example for the other team members to follow when they make contact with the enemy. The few seconds following the initial contact will often decide whether the maneuver team lives or dies. Therefore, immediate action following contact is critical and a leader must decide what that action is going to be. Since he is leading, the other team members can see him and DO AS HE DOES without waiting for orders.

When it has more than six men, a maneuver team moves in two wedges, one following the other. The squad leader acts as the leader of the second wedge. In order to have more direct control over the key weapons in the maneuver team, he usually keeps them with him in the trailing wedge. Although the maneuver team in this case moves as two wedges, it normally operates as one element of the platoon and does not overwatch itself. The distance between the two wedges is 5-10 meters.



THE WEDGE.



Positions for all but the first man (either a team leader or the squad leader) may vary. Each man is assigned a sector of observation so that the wedge has all-round security.

Normal interval between men is about 10 meters, but may be less if visibility is poor. Terrain may also dictate temporary modification of the wedge formation. For example, the sides of the wedge will have to close together into almost single file when moving along a narrow mountain path, through a minefield, or through heavy undergrowth. However, as soon as conditions permit, the wedge is resumed automatically and without command.

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MOVEMENT TECHNIQUES

Mechanized infantry platoons move mounted until it is necessary to dismount in order to accomplish the mission. The basic movement technique is with squads moving on a column axis (behind each other) so that only the lead squad makes first contact with the enemy and to ease control. This technique lets the platoon leader adjust the distance between squads to support the lead squad. Exactly how the basic technique is adjusted depends on the likelihood of contact with the enemy. As the possibility of making contact increases, have the lead squad move further out and have the trailing squads better prepared to fire and/or maneuver in support of the lead squad.

Likelihood of contact is divided into three categories. From the least chance of contact to the greatest they are--**not likely, possible,** or **expected.** Adjust the basic movement technique (column axis) to fit the likelihood of contact. For ease of reference, the movement technique used for each likelihood of contact has a name.

LIKELIHOOD OF CONTACT		MOVEMENT TECHNIQUE
1	*Not likely*	*Traveling*
2	*Possible*	*Traveling Overwatch*
3	*Expected*	*Bounding Overwatch*

These movement techniques are not fixed formations. Distances between squads vary based on the terrain and visibility. As the terrain becomes more rugged, as the vegetation becomes dense, or if visibility is reduced, the distances between squads are reduced. Squad leaders maintain visual contact with the squad to their front. One man in each squad maintains visual contact with the squad to the rear. The platoon should be able to move most of the time using arm-and-hand signals for control.

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TRAVELING

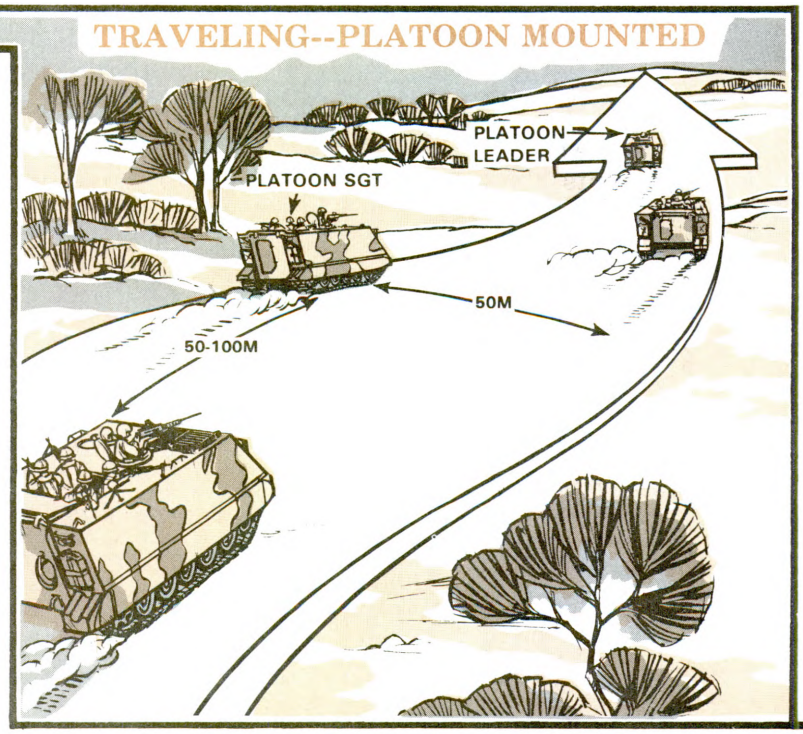
Use the traveling technique when speed is important and contact with the enemy is not likely.

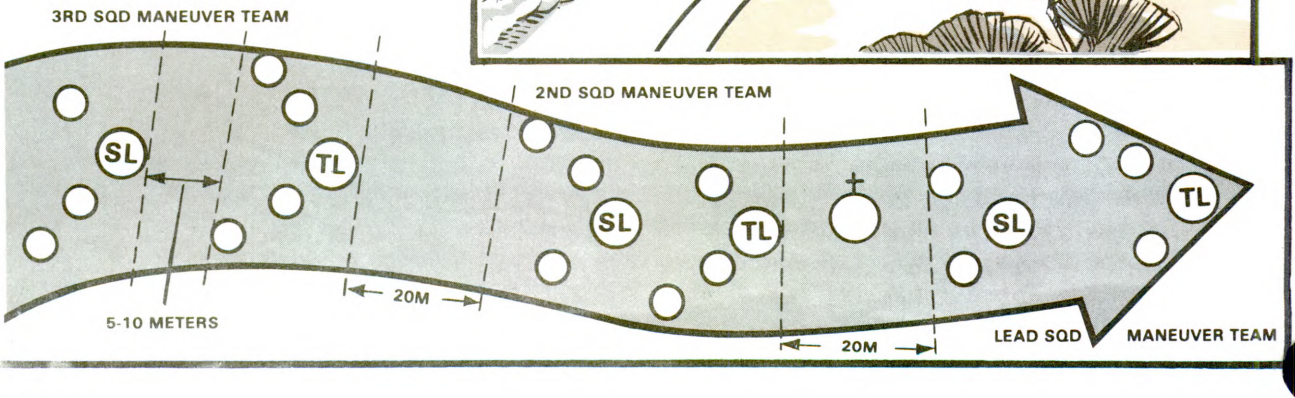
PLATOON MOUNTED

The platoon moves on a column axis, staggered laterally, with intervals of 50 meters to 100 meters between carriers, terrain permitting. As contact is not likely and speed is necessary, the platoon leader normally rides in the lead vehicle where he can best control movement. The platoon sergeant rides in the third carrier from which he can see the platoon leader, see the last carrier, and help control the trailing squads.

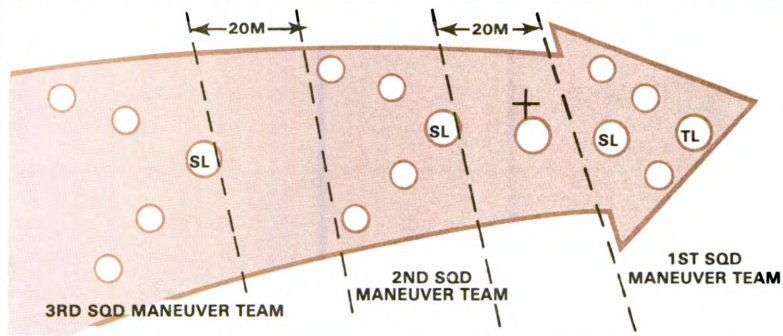
PLATOON DISMOUNTED

This technique is not used very often because when contact is **not likely** the platoon normally remains mounted. However, mechanized infantry may have missions that require it to operate away from its carriers. Squads move on a column axis, keeping about 20 meters apart. As a dismounted platoon is harder to control than a mounted platoon, its leader moves (dismounted) behind the lead squad. The platoon sergeant is with the carrier.





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Squads having one maneuver team also move in column about 20 meters apart. Squad leaders of training maneuver teams move at the head of their teams so they can better control their squads and see the platoon leader.

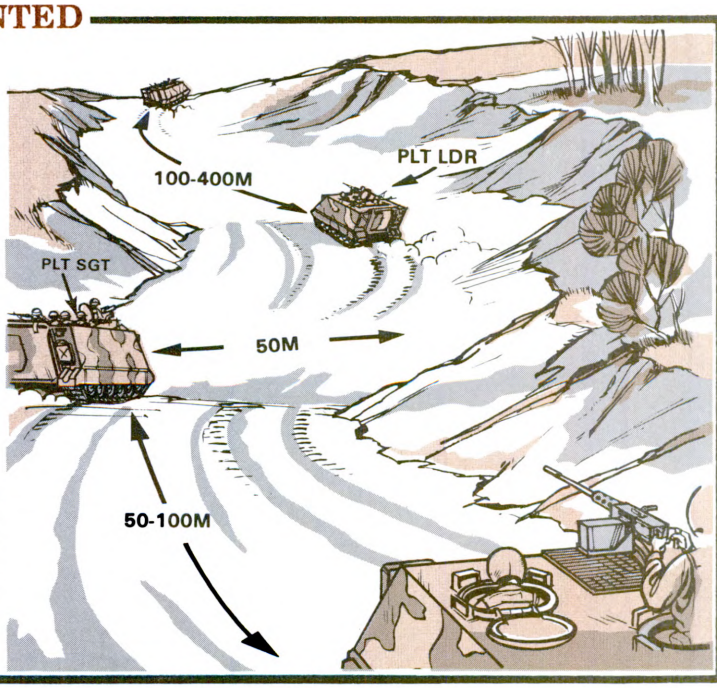
TRAVELING OVERWATCH

Use traveling overwatch when enemy contact is possible, but not expected. Caution is justified, but speed is desirable. This technique gives you more time and distance in which to react if the lead element unexpectedly runs into enemy fire.

The examples which follow all give recommended distances between elements. These are minimum distances in relatively open terrain. If you can maintain control and still support the leading element, you should increase distances. If the terrain becomes more rugged or the vegetation becomes dense, then you will have to decrease the distances.

PLATOON MOUNTED

As with the traveling technique, a platoon in traveling overwatch moves on a column axis. With this technique the platoon leader moves to the second position and sends one squad out 100-400 meters forward of the platoon. Movement of the entire platoon is continuous and maximum use is made of cover and concealment. The platoon (-) keys its movement on the lead squad and will vary its rate of movement as required to maintain a proper distance. Visual contact between the platoon and the lead squad must be maintained. The lead squad may have to reduce its rate of movement if the platoon (-) can't keep up. One man in the lead APC must be designated to keep the platoon leader in sight and relay his signals to the squad leader.

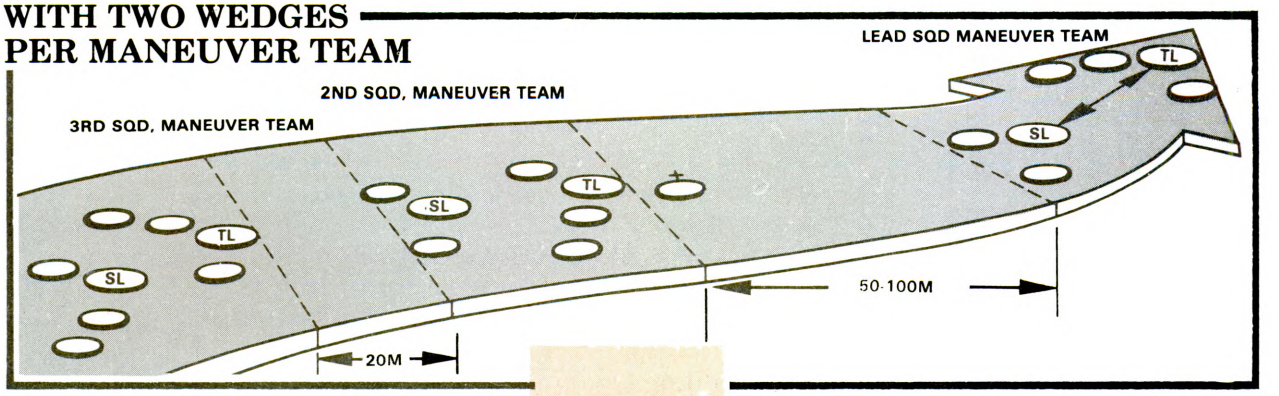


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PLATOON DISMOUNTED.

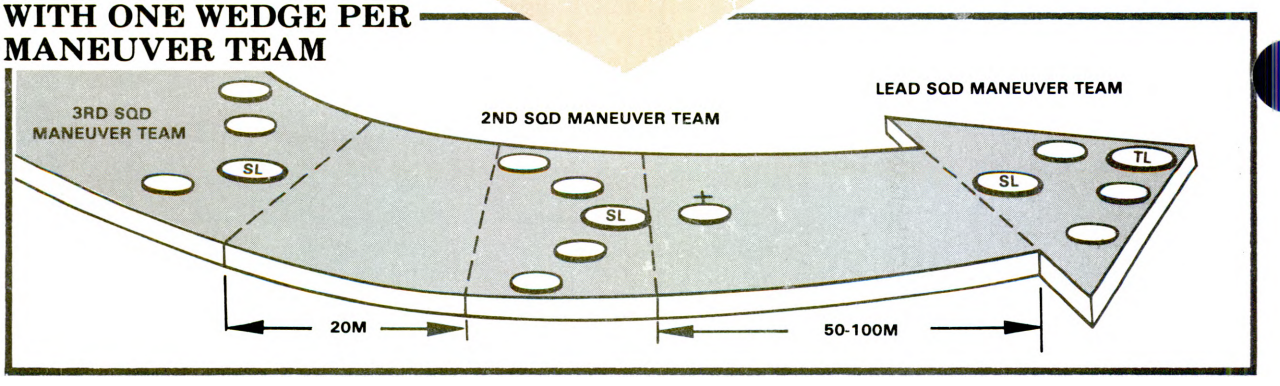
The lead squad tries to move at least 50 meters, and preferably 100 meters or more, in front of the platoon (-).

WITH TWO WEDGES PER MANEUVER TEAM



OR

WITH ONE WEDGE PER MANEUVER TEAM



Dismounted traveling overwatch is rarely used. As was stated earlier, when the platoon is not in contact and has to move on the battlefield, it moves mounted unless forced to dismount. In most cases when you are forced to dismount the situation calls for more deliberate movement and greater caution than is provided by this technique.

BOUNDING OVERWATCH.

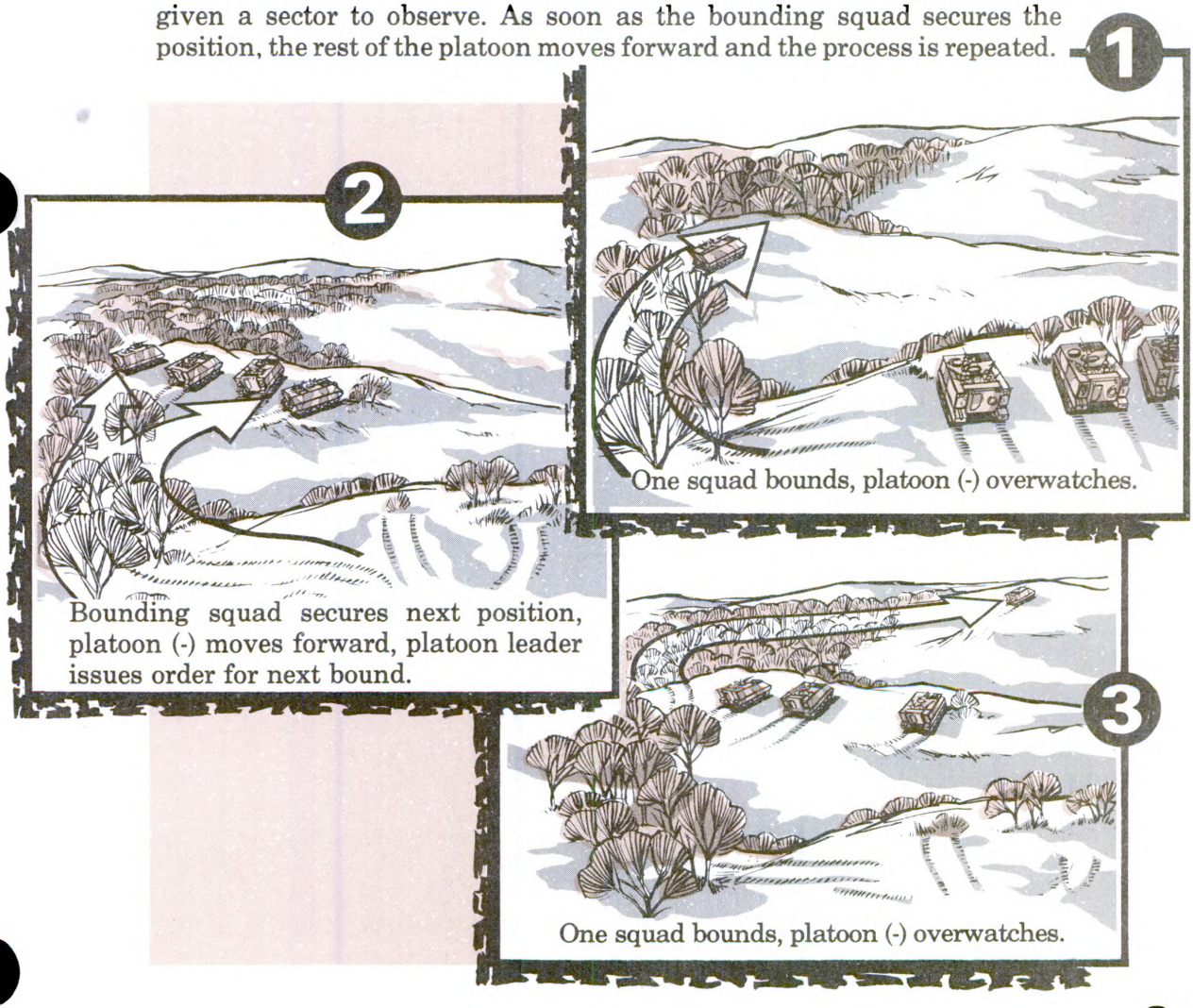
Use bounding overwatch when contact is expected. This is the most deliberate and cautious of the movement techniques. The **overwatch** covers the progress of the bounding element from a covered, concealed position offering observation and field of fire against potential enemy positions. It can immediately support the bounding element by fire and/or

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maneuver if the bounding element makes contact. The **bounding element** moves forward to another position covered by the overwatching element. When it reaches the new position, it secures it so that the overwatching element can move forward. The length of the bound is closely tied to the range of weapons and fields of fire of the overwatch.

PLATOON MOUNTED.

When the mounted platoon uses bounding overwatch, one squad bounds while the platoon (-) overwatches from a stationary position. The bounding squad moves to a new position and secures it so that the platoon can continue to move. When it reaches the new position, the bounding squad dismounts only enough men and weapons to secure the area. If the new position is relatively open, the bounding squad may not have to dismount to secure the area. It stays mounted and each man in the cargo hatch is given a sector to observe. As soon as the bounding squad secures the position, the rest of the platoon moves forward and the process is repeated.



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BOUNDING DISMOUNTED.

Bound dismounted when contact is expected and the terrain will not let you move mounted or when separated from the carriers. This is done like the mounted bounding overwatch except that the length of the bound is reduced because the terrain restricts the ability of the overwatch element to maneuver in support of the bounding element if contact is made.

ORDERS.

Before you use bounding overwatch, make sure that the bounding element and the overwatch element know exactly what is going to happen. From the position that you intend to use for the overwatch, give both elements clear and complete orders. You should tell them (show them):

- The next overwatch position.
- The route of the bounding element to that position.
- The position(s) of the overwatch element(s).
- What you intend to do after the bounding element gets to the next position.

When platoons and squads are well trained their leaders are able to give almost all orders for bounding overwatch by pointing and using arm-and-hand signals.

Here is an example of a platoon leader's oral order:

"I expect contact in this area, so we will use bounding overwatch. The enemy probably has antitank guns on one of the hills to our front. 3d Squad: move through the tree line to our right front and guide along the north of the creek. Check out the hill to our front--the one with the farmhouse. If you don't make contact, take up a position on that hill from which you can cover the hill farther to our front. Pay particular attention to the area around the farmhouse. We will cover you from here until you secure your position. After you are set up, we will follow the same route you took and join you. Are they any questions? MOVE OUT!"



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CONTROL OF KEY WEAPONS DURING MOVEMENT

The platoon leader might--

- Attach a Dragon to the lead squad to increase that squad's antiarmor capability.
- Keep one Dragon and one M60 machinegun directly under his control (in his carrier).
- Attach an M60 machinegun to the rear squad as it has a large area to cover (one flank and the entire rear).

The squad leader normally--

- Employs the Dragon with the carrier team.
- Has the M60 machinegun directly under his control (it goes where he goes).

Carrier team leaders--

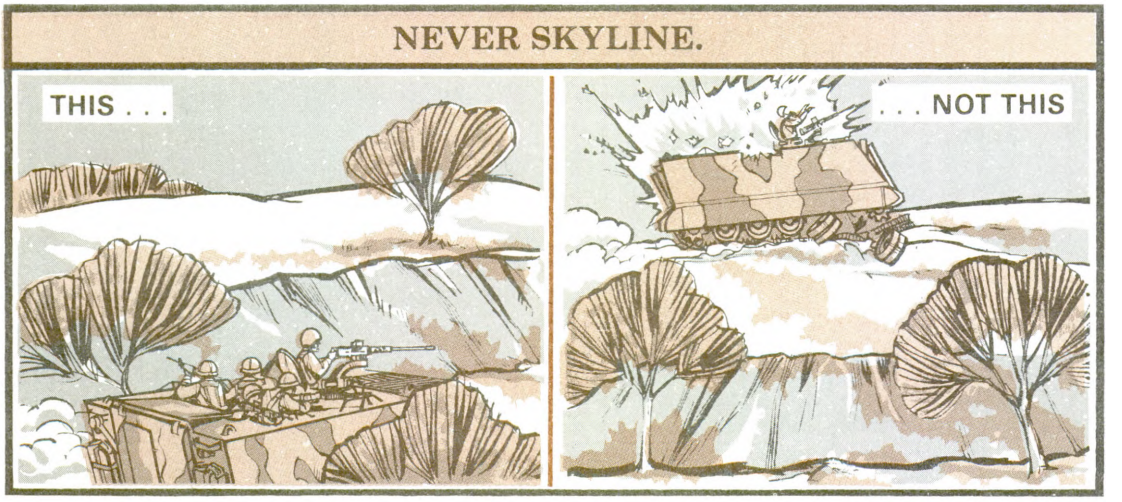
- Man the cal .50 machinegun at all times unless an antitank weapon is being fired from the carrier.
- Assign fields of fire for weapons assigned to the carrier team when the squad leader dismounts.

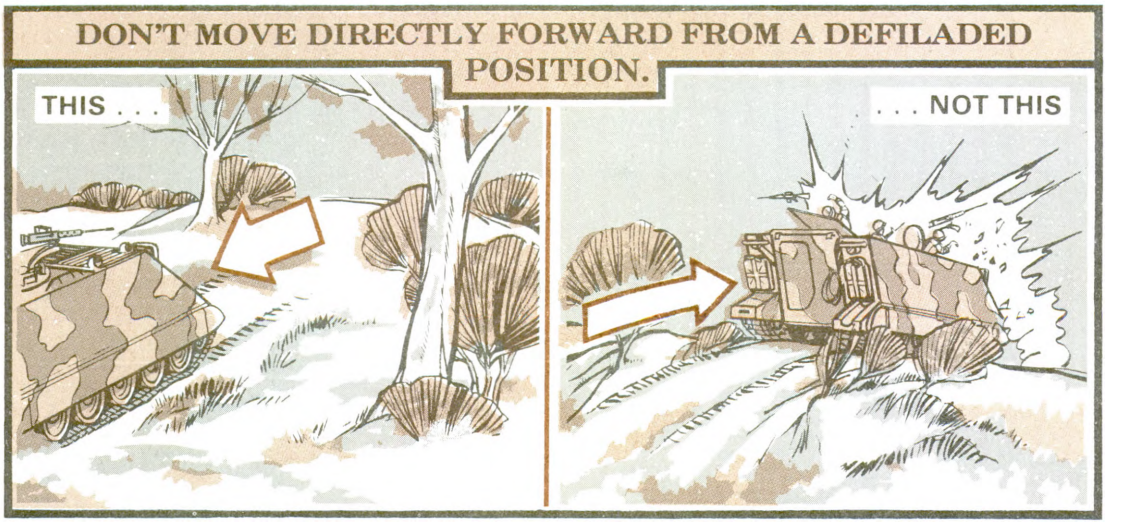
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AVOID UNNECESSARY EXPOSURE

Use Terrain. Whether you are moving mounted or dismounted, you can reduce your exposure to enemy fire if you use terrain properly.

Use all available cover and concealment. Remember, if the enemy can't see you, he can't hit you with direct fire or accurately adjust indirect fire on you.





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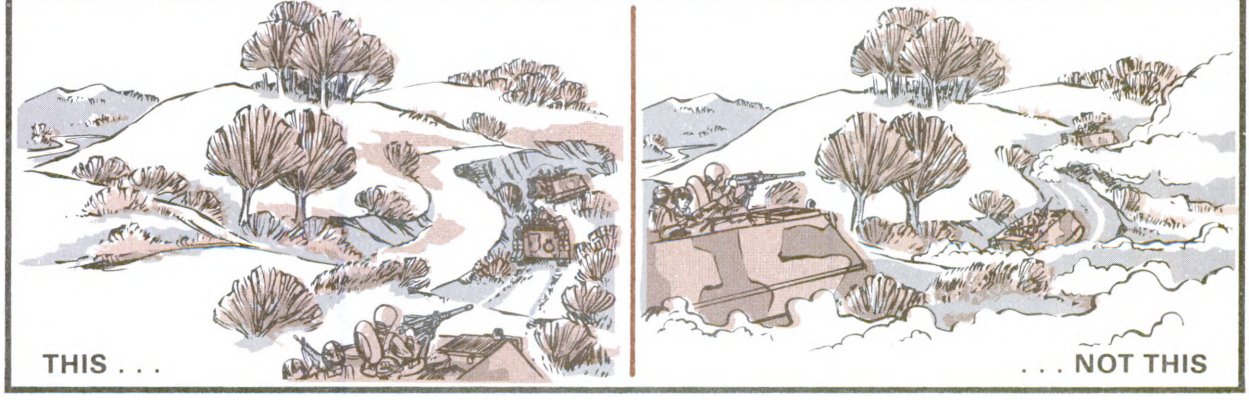
If you must cross an open area, check it first, then CROSS IT QUICKLY using bounding overwatch. When you approach an open area that you have to cross, have the leading element move up and check out the area for possible enemy positions. Before you emerge from cover, move up the other squads to overwatch. If enemy positions are identified or suspected, suppress them by fire or smoke prior to crossing. (Your commander must know what you are doing--so before you open fire, tell him what you intend to do.)

If you are told to move in relatively open terrain because moving through a more covered route would be too time consuming, then at least identify areas into which you can move to escape ATGM fire.

Here a dense tree line provides protection from Saggers.



Avoid dusty areas when possible, since it may tell the enemy where you are.



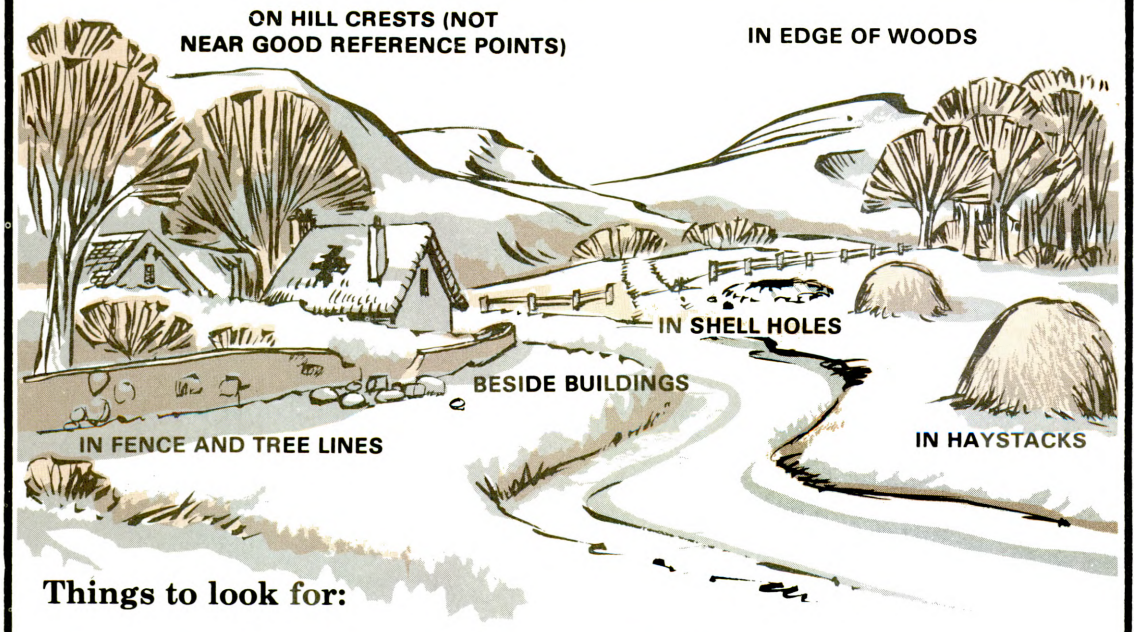
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DON'T STOP IN THE OPEN

Anytime the carrier stops it should be concealed. Ideally it stops in a concealed defiladed position, but this is not always possible. At least, try to stop under a tree or bush that conceals the carrier from aircraft by breaking up the outline.

SPOT THE ENEMY BEFORE HE SPOTS YOU

As you move, you must constantly search for possible enemy positions. You may find his positions wherever he has good fields of fire, cover, and concealment.



Things to look for:

- Straight lines (they do not occur naturally).
- Tracks, trash, and other evidence of activity.
- Broken foliage or foliage that doesn't match.
- Movement.
- Glare.
- Smoke, flash, or dust.

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DON'T FORGET ENEMY AIRCRAFT

You must always consider whether you can be seen from above. When mounted, each man in the cargo hatch must watch constantly for enemy aircraft. Since each man in the hatch has been assigned a sector on the ground for which he is responsible, he is also responsible to observe for aircraft in the same sector.

HOW TO OVERWATCH

DURING BOUNDING OVERWATCH

All overwatch elements have basically the same tasks. They should--

- be able to support the bounding element with direct fire.
- be able to maneuver in support of the bounding element.
- have the capability of calling for direct fire.
- be controlled by one man, to ease control and fire distribution. He must have direct communication with the bounding element (in many cases this will be visual).
- cover the flanks and rear, as well as the front, of the bounding element.
- have covered and concealed positions.

When the platoon is bounding or when it is overwatching another element, the platoon leader gives each squad a sector which it must observe and, if necessary, cover by fire. The sector may be identified as a specific area, or by target reference points, or the platoon may have an SOP (such as the clock system) to designate squad responsibility.

DURING TRAVELING OVERWATCH

In traveling overwatch, men in the platoon leader's APC and the squad in the APC directly behind the platoon leader's APC must be able to return fire immediately if contact is made and if the enemy fires. The last squad must be prepared to maneuver in support of the lead squad, but it can be moved into an overwatch position if maneuver against the enemy is not required.

MOVEMENT WITH TANKS

Mechanized infantry platoons habitually operate with tank platoons in a company team. Tanks and infantry move together constantly prepared to support each other. When terrain and visibility are good for mounted movement and if there are no obstacles to mounted movement, tanks lead followed by infantry. If obstacles preclude mounted movement and cannot be bypassed, if close terrain (such as a built-up area or a defile) cannot be bypassed, of if visibility is limited, mechanized infantry will dismount

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and lead the tanks. Mechanized infantry usually leads mounted only if there is an unfordable body of water that the tanks cannot cross.

HOW THE PLATOON MOVES WHEN TANKS LEAD

When the company team is traveling or in traveling overwatch, its commander will tell the mechanized platoon where it should move and at what distance behind the tanks. Normally, the mechanized infantry will use the traveling technique and follow the tanks close enough to shoot between them and to their flanks. It must be far enough behind so that it is not hit by fire directed at the tanks. Its mission is to protect the tanks from enemy infantry and antitank weapons.

When the company team is using bounding overwatch, a tank platoon is usually the bounding element and is overwatched by TOWs, infantry, and other tanks. When overwatching tanks, you must observe to their rears as well as to their flanks and front. Tankers have difficulty seeing behind them and one of your jobs is to protect them from enemy infantry that tries to attack the tanks from the flanks and the rear. Be particularly alert for enemy ATGMs fired at the flanks or rears of the tanks. If you see one, immediately send a warning over the radio and fire at the base of the smoke trail left by the missile.



HOW THE PLATOON MOVES WHEN IT LEADS TANKS

The platoon will dismount and lead in order to clear, breach, or find a way through an obstacle. To get to the obstacle, it uses one of the movement techniques. It then clears the obstacle (app M).

When visibility does not allow the team to move mounted without first clearing the area on foot, infantry will dismount and lead the tanks. You usually cannot see far enough to use bounding overwatch, so you will have to use traveling overwatch. Have the lead squad move as far forward as it can and still be under your control. Fire control in darkness while moving is difficult. It can be done only if your unit has trained enough to develop well-understood SOPs. Do not rely on illumination. It usually is not fast enough to give you instant visibility and is not very effective in fog, snow, dust, or heavy rain.

CAUTION:

When you are leading and being overwatched by tanks, make sure they know exactly where you are so that they don't fire their main gun over your head without warning you first. On some types of tank ammunition large pieces of metal fall off shortly after the round is fired. With the antipersonnel round (bee hive), a large area is covered by one round.

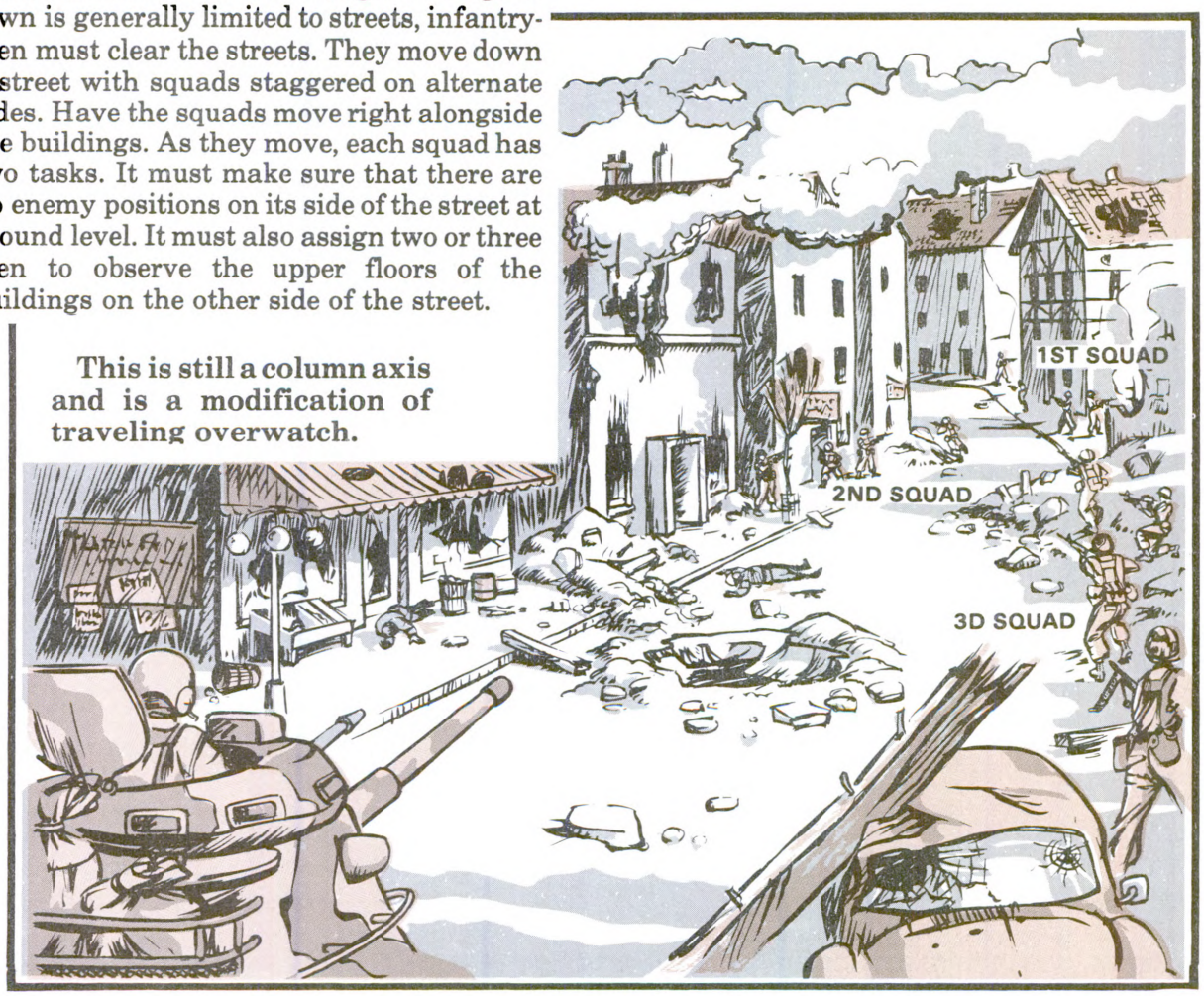
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When the infantry dismounts to lead through close terrain, it must clear the way so the tanks and APCs can move through safely. Modify the technique to fit the situation. For example, it usually happens when you are--

Clearing a defile that forces a unit to move through it in single file. Common defiles for mechanized units are roads or trails through swamps or heavy forests. When you must clear a defile, clear each side far enough off the road to make sure that there are no enemy ambushes. Also check the road for mines. This task usually requires a platoon to move with two squads forward, one on each side of the road. The remaining squad follows one of the lead squads.

LEADING THROUGH BUILT-UP AREAS

As vehicle movement through a village or town is generally limited to streets, infantrymen must clear the streets. They move down a street with squads staggered on alternate sides. Have the squads move right alongside the buildings. As they move, each squad has two tasks. It must make sure that there are no enemy positions on its side of the street at ground level. It must also assign two or three men to observe the upper floors of the buildings on the other side of the street.

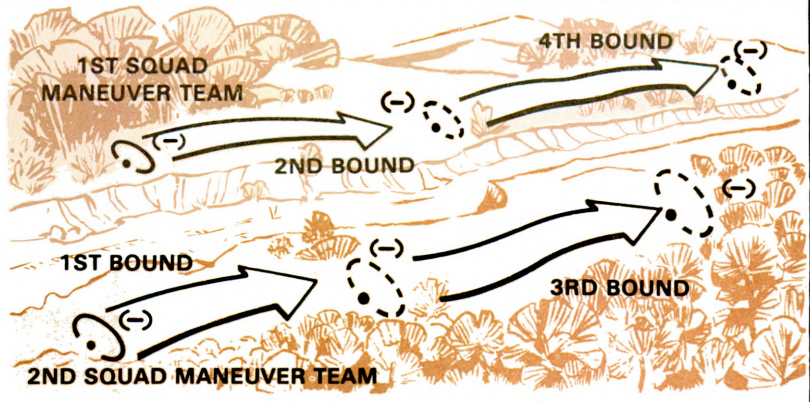


This is still a column axis and is a modification of traveling overwatch.

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As contact must usually be expected at defiles, the leading squads alternate bounding overwatch (leapfrog) so that they will not make contact at the same time.

In each situation described, the technique is to lead with dismounted infantry, followed by tanks. The platoon's carriers move behind the tanks. This allows the tanks to fire immediately in support of the infantry.



SUMMARY OF MOVEMENT WHEN NOT IN CONTACT

maximize the mobility and firepower of the APCs.

Use all available cover and concealment.

Make contact with the smallest possible force.

Move on a column axis.

There are no fixed formations. Along the column axis the platoon as a whole, as well as men and vehicles, move so as to use all available cover and concealment.

Control by maintaining visual contact and issuing clear, complete orders.

Always have a unit in position to fire and/or maneuver in support of the leading element.

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Section III. MOVEMENT AFTER ENEMY CONTACT IS MADE

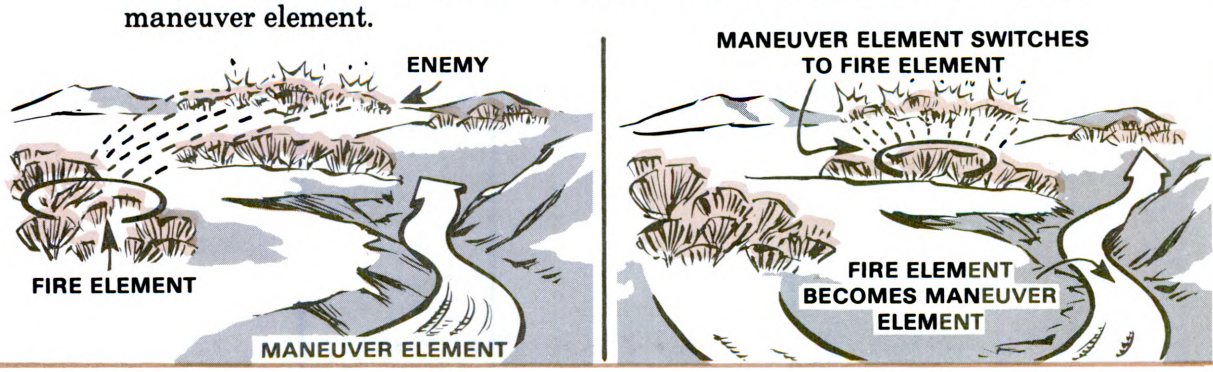
The technique for moving when in contact is--FIRE AND MANEUVER. It is done to--

- **Find out more about the enemy; e.g., locate positions, determine enemy strength.**
- **Close with and destroy the enemy.**
- **Move away from the enemy; i.e., withdraw.**

Fire and maneuver is used in all of these situations, and is performed basically the same way in each case. For that reason, it will be addressed here in terms of closing with the enemy. This section does not address the immediate actions on contact taken when you first meet the enemy. (See chapter 5.)

HOW FIRE AND MANEUVER WORKS

Fire and maneuver consists of two actions that take place at once. A ***fire element*** covers the movement of a maneuver element by shooting at the enemy position. The ***maneuver element*** moves forward to either close with the enemy or to a better position from which to fire at the enemy. Depending on the distance to the enemy position and the amount of cover and concealment available, the fire element and the maneuver element switch roles as needed to continue moving. Before the maneuver element advances beyond the supporting range of the fire element, it takes a position from which it can fire on the enemy, and the fire element becomes the maneuver element.



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Mechanized infantry platoons and squads will normally employ, or take part in, fire and maneuver under one of these conditions:

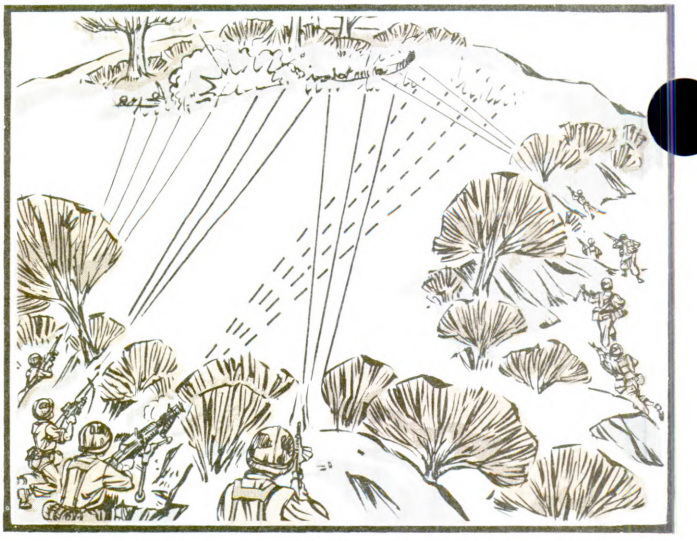
- **When in a company team with tanks leading and contact is made by the tanks.**
- **When in a company team with the mechanized platoon leading dismounted in front of the tanks and contact is made by the infantry.**
- **When fighting as part of its company with no tanks attached. (Platoon may be leading or overwatching, mounted or dismounted when contact is made.)**

In each condition described above, the platoon acts as either a company (team) fire element or a maneuver element. When it is a maneuver element, the platoon conducts fire and maneuver with its squads in order to advance. If the platoon is dismounted, the platoon leader uses the squad maneuver teams and carrier teams to fire and maneuver. Maneuver teams fire and maneuver by wedges (when they have two wedges) and by buddy teams within the wedge.

The fire element covers and protects the advance of maneuvering units with its fire. Whenever possible, the fire element moves undetected into a firing position. A high volume of surprise fire from an unexpected direction has a much greater effect than fire delivered from a known position. When the fire element is in position, the following usually takes place:

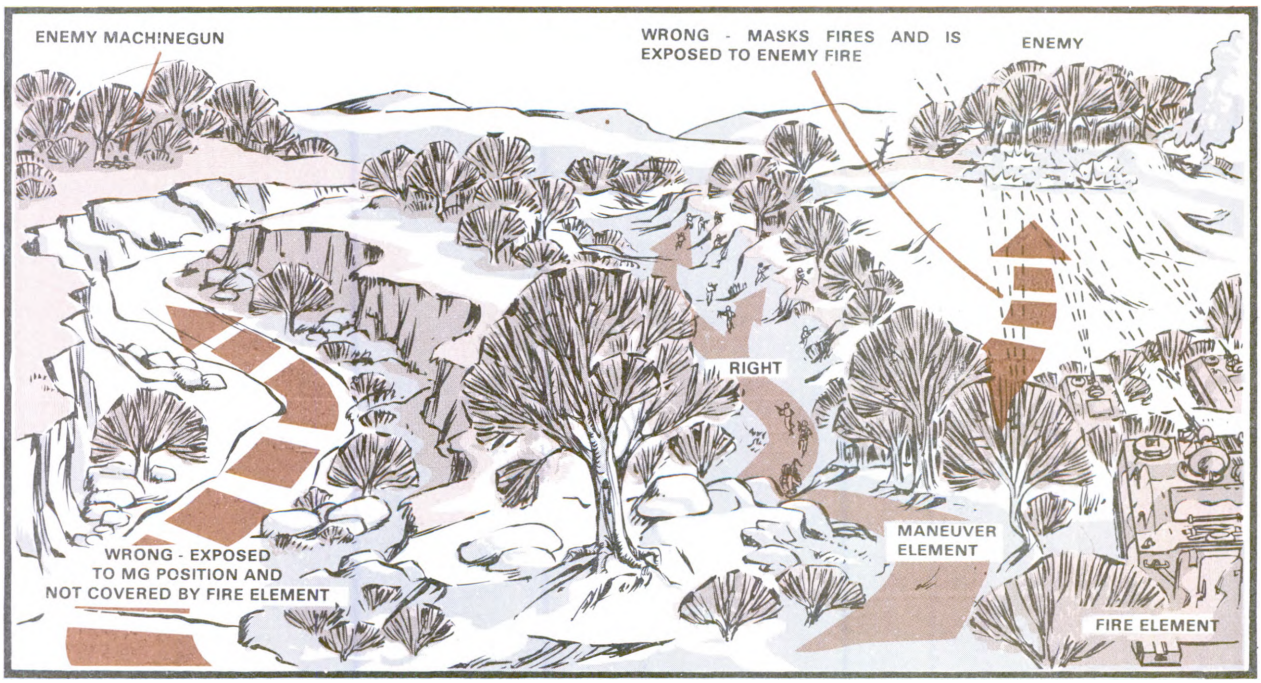
- ☐ ***A heavy volume of fire is shot at the enemy position to suppress it.***
- ☐ ***When the enemy position is suppressed, the rate of fire is reduced. However, suppression must continue.***
- ☐ ***When the maneuver element nears its objective, the rate of fire is increased to cause the enemy to keep down. This lets the maneuver element assault before the enemy has time to react.***

When the assault begins, or on signal, the fire element will either cease fire, shift its fire to another target area, or more desirably, "walk" its fire across the objective in front of the maneuver element and then shift or cease.



Positions for the fire element should be selected to allow fire support for the maneuver element without having movement of the maneuver element mask the supporting fire. For this reason, positions selected for the fire element are often elevated and usually to the flank of the maneuver element. The maneuver element should neither mask the fire of the fire element or move outside its protective umbrella.

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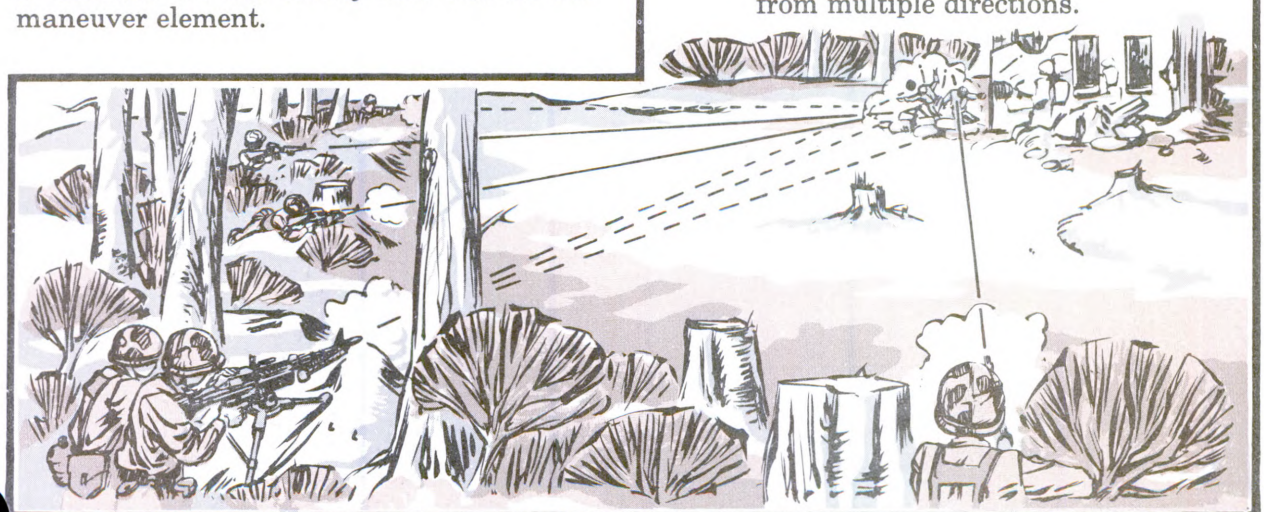


Fire on the enemy is the key to allowing forward maneuver. The fire element tries to destroy or suppress the enemy. Suppressive fire is placed on the enemy to keep him from hitting the maneuver element.

The platoon or squad can concentrate fire or distribute fire. In both cases the leader must control the fire. He must see that the fire is directed on the enemy and not on the maneuver element.

CONCENTRATED FIRE

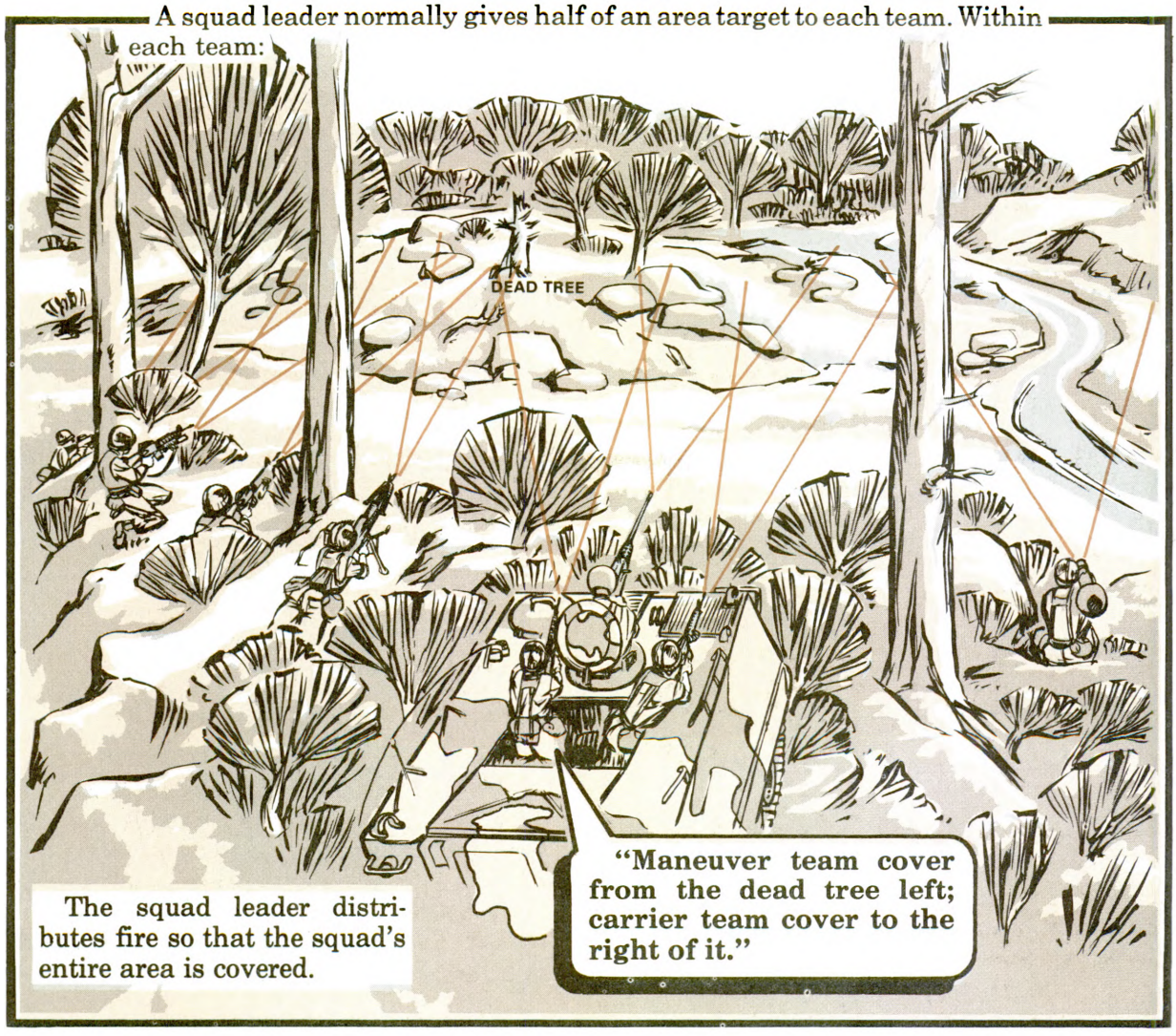
Concentrated fire is directed against a specific identified target--such as a machinegun. All troops fire at the target. Spreading the fire element out aids in this type of fire because the fire is directed from multiple directions.



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DISTRIBUTED FIRE

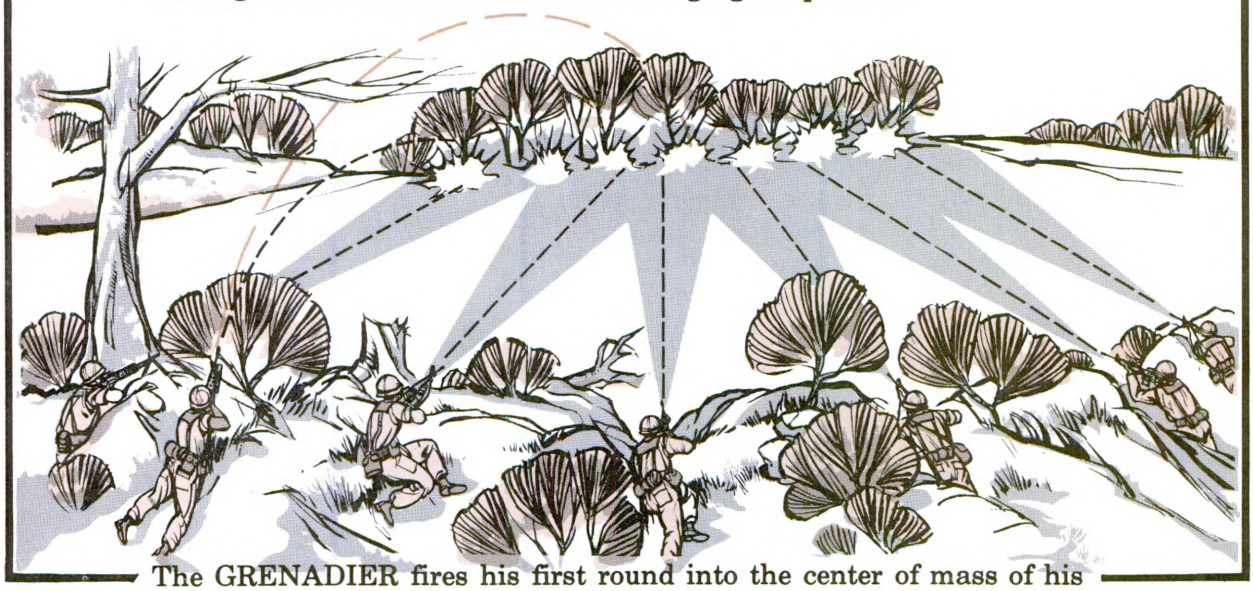
A squad leader normally gives half of an area target to each team. Within each team:



Fire is distributed in width and/or depth to keep all parts of the target under fire. Fire is placed on likely locations for enemy positions rather than into a general area. Each RIFLEMAN fires his first shot on that part of the target that corresponds to his position in the team. If he is left of the team leader, he fires to the left of the team leader's tracers.

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He then distributes his remaining shots over that part of the target extending a few meters right and left of his first shot. He covers that part of the target which he can hit without changing his position.



The GRENADIER fires his first round into the center of mass of his team's target.

He then distributes his shots over the remaining target area from center to each side and from front to rear.

The part of the target which each AUTOMATIC RIFLEMAN can cover depends on his position and the range. When he can, each automatic rifleman should cover the entire team target. When placing automatic suppressive fire on the enemy the tendency is to shoot high--therefore, initial bursts should be placed low and then worked up to the target. The squad leader must tell the machinegunner(s) where to shoot by assigning sector(s) of fire.

When a squad having a Dragon is the fire element, the Dragon stays under the squad leader's direct control. It is fired only at important point targets such as enemy armored vehicles and key weapons. In the absence of proper Dragon targets the Dragon gunner will fire his rifle. The platoon leader will tell the squad leader what type targets to hit with Dragon fire.

These techniques of distributing fire permit you to rapidly cover an entire area with fire, even if you cannot see the enemy. This method is employed without command. Distributed fire is the quickest and best way to bring all parts of a target under fire.

The ***maneuver element*** advances covered by the fire of the fire element. The technique which the maneuver element uses to move depends primarily on the enemy fire. When it is receiving enemy fire, the maneuver element moves using fire and maneuver internally--one APC advances while another covers, or one man advances while his buddy covers. If it is not receiving direct fire, the maneuver element can move using bounding overwatch or it can fire and maneuver internally.

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Whether the platoon or squad maneuver element moves mounted or dismounted, and how it will close with or disengage from the enemy is based on the mission of the unit and whether or not mounted movement is possible. Therefore, platoons, and squads acting as maneuver elements are addressed in the chapters on offensive operations (chapter 4) and defensive operations (chapter 5).

Moving singly by members of a dismounted maneuver element depends on the intensity of enemy fire.

Crawling may be required when a maneuver element faces intense enemy fire and has little cover. Men use either the low or high crawl depending on their situation, the requirement for speed, and the example of their squad/team leader. This method is slow but reduces their exposure to enemy observation and fire. When not moving forward, men shoot suppressive fire at the enemy. If necessary, the squad members may advance all the way into and through enemy positions by crawling.



Short rushes from covered position to covered position may be used when enemy fire allows brief exposure. Maneuver teams, buddy teams, or individuals may advance by short rushes to avoid accurate enemy fire. Try not to stay up any longer than 3 to 5 seconds so that you don't give the enemy time to "track" you with his automatic fire. The rule is to rush from cover to cover. Don't hit the ground in the open just because you have been up for 5 seconds.



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CHAPTER 4
THE OFFENSE

Section I.
GENERAL

The primary purpose of offensive operations is destruction of the enemy and his will to fight. Mechanized infantry platoons and squads normally conduct offensive operations as part of a company team. In general, the team attempts to break through the enemy's defense position, get into his rear, and destroy his troops and materiel. However, the primary offensive tasks at squad and platoon level are:

- **Move to contact--**
  - ***overwatching when tanks lead.***
  - ***leading mounted when***
    - **no tanks are available.**
    - **crossing water obstacles.**
    - **moving up to a dismount point to clear the route.**
  - ***leading dismounted to clear the route for tanks and APCs.***
- **Conduct actions on contact**
- **Attack mounted--**
  - ***following tanks.***
  - ***without tanks.***

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- **Attack dismounted--**
  - ***following tanks.***
  - ***without tanks, but supported by tank, TOW or carrier fire.***
- **Breach or reduce obstacles.**
- **Consolidate and reorganize after an attack if not immediately continuing on.**

In order to perform these tasks well, you must know how the enemy defends. Section II of this chapter tells you what to expect from the enemy as you attack. The following sections will discuss actions by platoons and squads when they make contact, when they close with and destroy the enemy, and during consolidation and reorganization.

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Section II.
HOW THE ENEMY DEFENDS

The enemy considers the defense to be temporary. Defensive operations are undertaken to create a favorable situation for resuming the offense by inflicting heavy losses on the enemy, as an economy of force measure, consolidating objectives, or to provide cover for withdrawing forces. He uses two types of defense: hasty and deliberate. A hasty defense differs from a deliberate defense in the amount of time and resources available for preparation of positions.

The threat defense is based on the following principles:

- **Antitank defense.**
- **Depth.**
- **All-round defense.**
- **Stability (mutually-supporting strong-points).**
- **Dispersion.**
- **Coordination of defensive fire.**
- **Security (early warning).**
- **Mobile counterattack forces.**
- **Use of key terrain.**

Antitank weapons are the foundation of his defense. Tanks are their primary targets. The fires of all weapons that can damage or destroy tanks are directed along armor avenues of approach. Selection of locations and emplacement of antitank weapons and obstacles are two of the commander's primary duties.

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THE HASTY DEFENSE

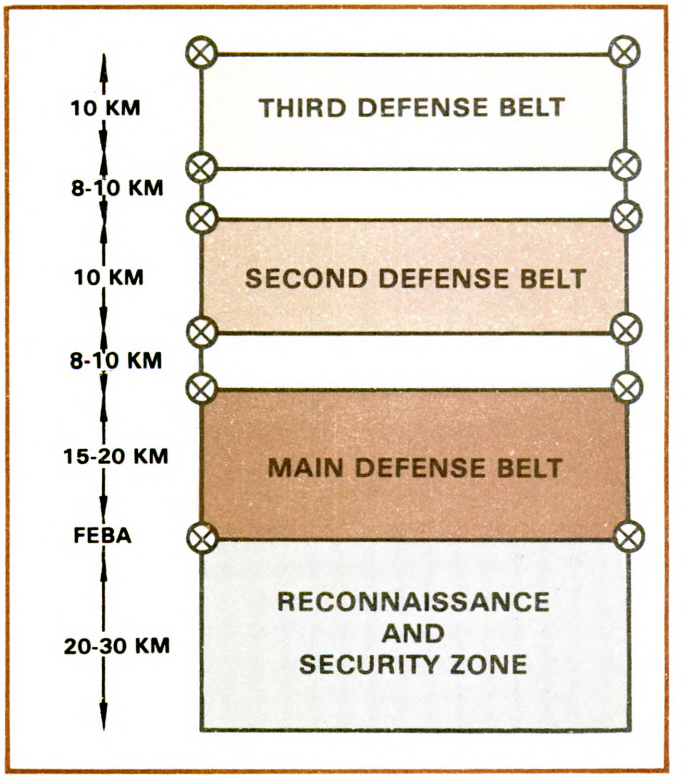
The hasty defense is normally employed when units on the move are forced to stop in place. Companies pull off the road, or out of column, move onto the nearest defensible terrain, and establish defensive positions. If the formation is led by tanks, they normally pull back to the second echelon; however, they can be utilized to strengthen the forward defensive positions. Antitank weapons move well forward to protect flanks and gaps between positions. This type of defense is undertaken when Threat intends to resume the offense shortly thereafter.

THE DELIBERATE DEFENSE

A deliberate defense is prepared with successive echelons providing depth to the defense. Forward is a security zone, followed by a main defense belt, followed by a 2d and 3d defense belt. Each belt consists of a series of mutually-supporting, self-sufficient company and battalion-size strongpoints echeloned in depth. Strong mobile, tank-heavy reserves are retained as a counterattack force. Obstacle belts are built both forward of and within each defense belt to impede the advance of attackers and canalize them into preplanned kill zones.

NOTE

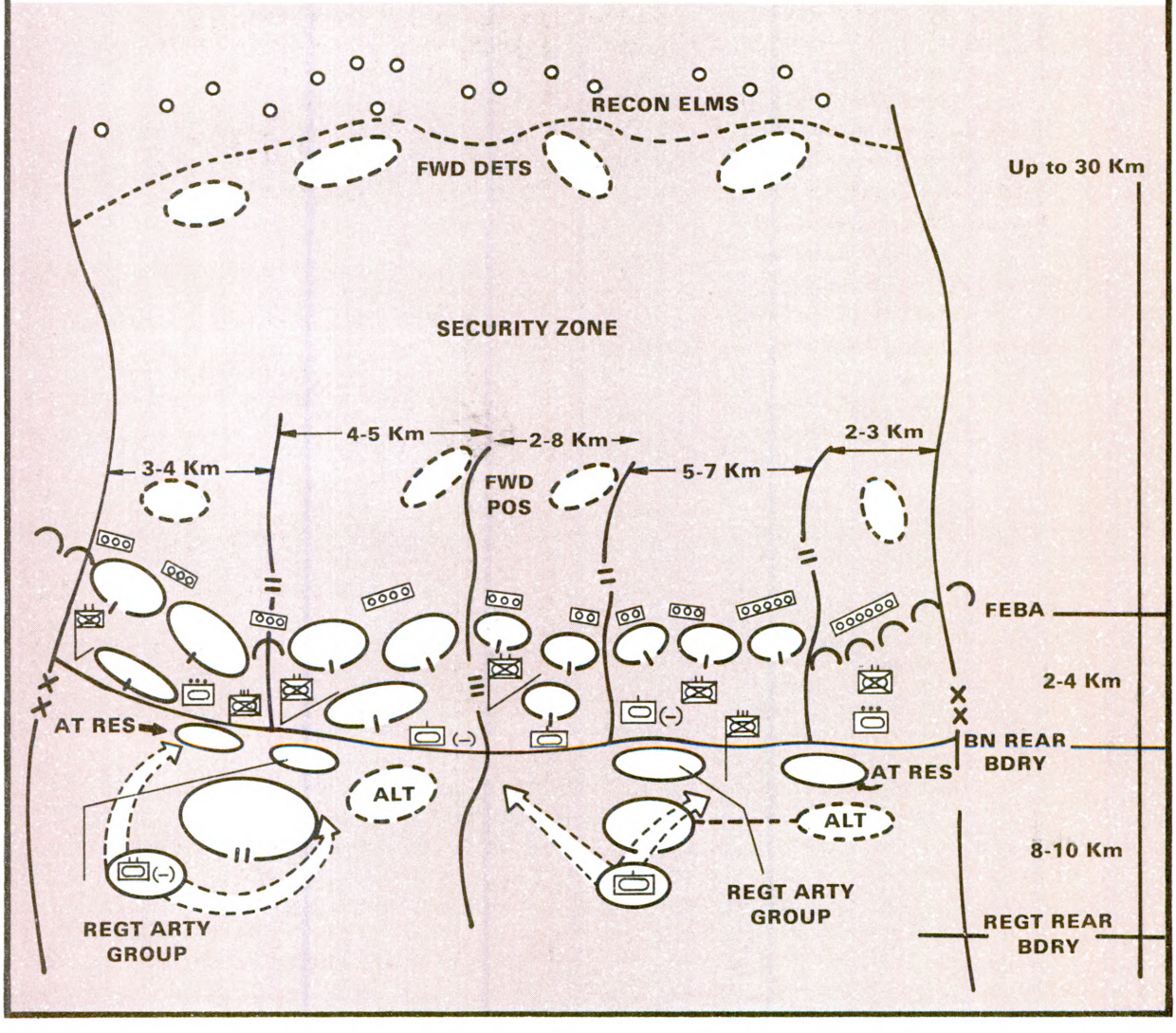
The security zone is used to halt or delay the enemy by forcing him to deploy for combat before reaching the main defense belt. The main defense belt is designed to stop and destroy enemy attacking forces. The second defensive belt is to contain attackers that have penetrated the main defense belt. The third defense belt is reponsible for counterattacks.



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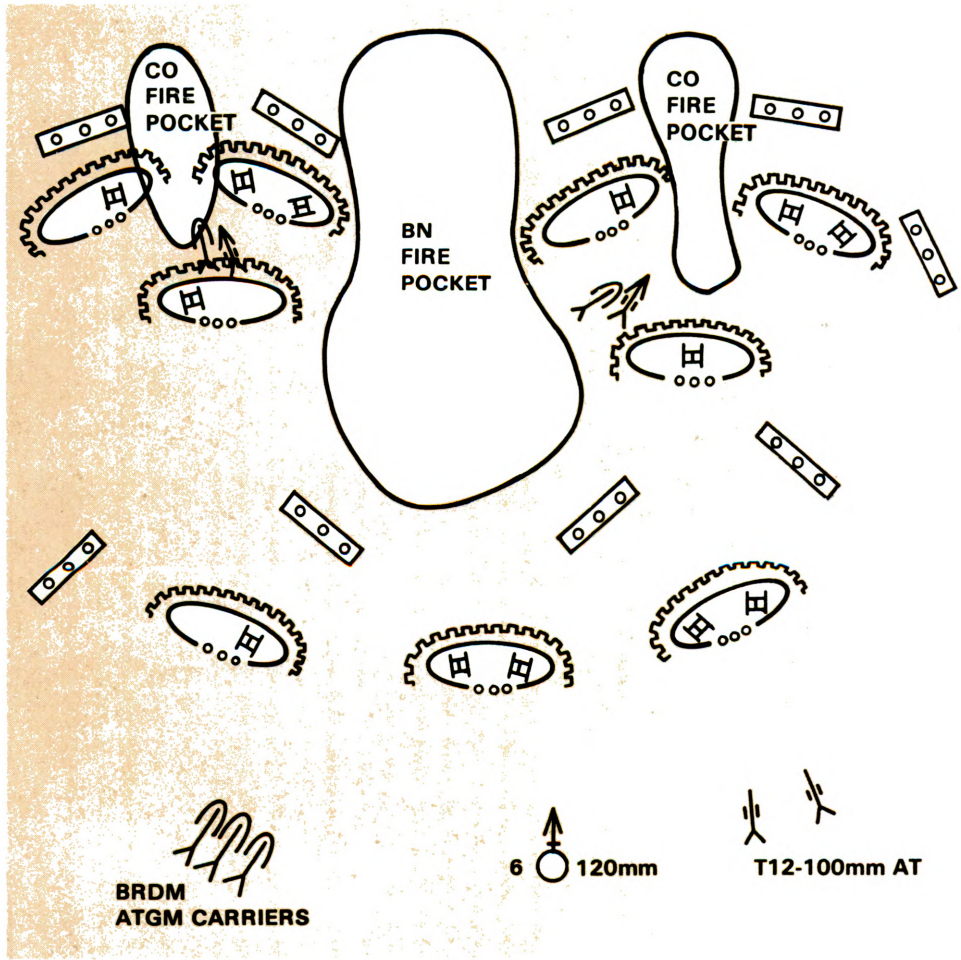
ORGANIZATION OF THE DEFENSE

The combat formations, frontages, and depths of defending units are determined by terrain, enemy, mission, forces, and available fire support. Shown below is a typical defensive array where the center and left sectors are astride main avenues of approach. As shown by this figure, the battalion commander may deploy his companies on line, with three companies forward, or with two companies forward and one back. The latter is the most common defensive deployment.



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In the defense, the motorized rifle company operates as an integral part of the battalion. Gaps between forward companies are normally established as kill zones or firepockets. They are covered with artillery, antitank fire, and heavy belts of mines and other obstacles.

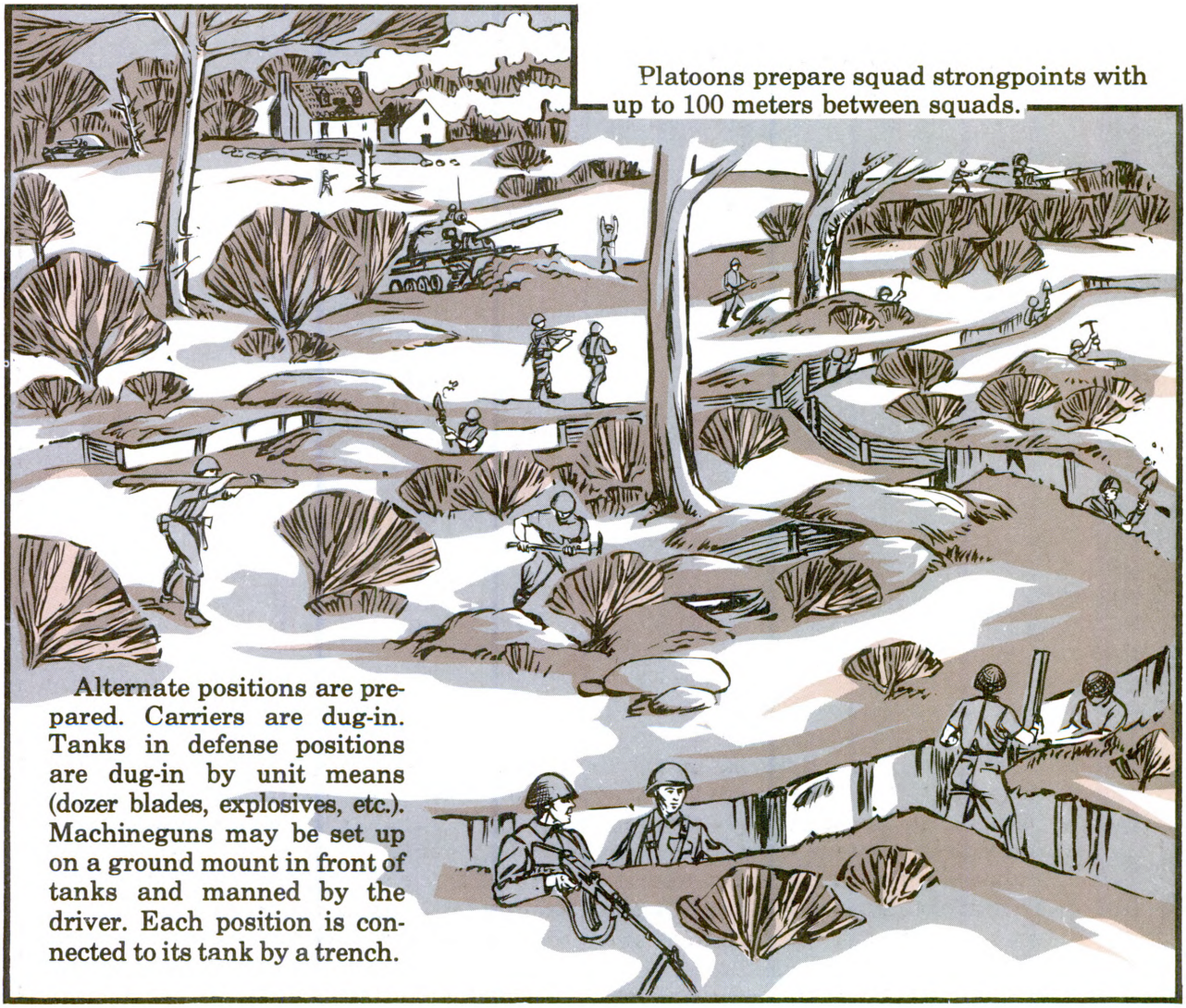


Within the company sector, each platoon strongpoints its position, and eventually the entire company position becomes a strongpoint which is usually on key terrain, astride or commanding an avenue of approach. Antitank weapons are dispersed in depth, are mutually supporting, and allow all-round defense. AT weapons are located as close as possible to the line of contact, while tanks are disposed between them and in depth. All weapons are dug in. Minefields and wire are used extensively.

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Fighting positions are dug-in and continuously improved until a trench system is established. There are usually two main trenches in the company strongpoint. The first main trench, running across the company front is occupied by the two forward platoons. The second main trench, to the rear, is occupied by the third platoon and company headquarters. A secondary trench may be constructed behind each main trench of the forward platoons and occupied by a squad. Later, a connecting trench is dug between the first and second main trenches. All trenches are camouflaged as quickly as they are dug. Alternate positions are prepared within each unit strongpoint.

A forward platoon in a deliberate defense normally positions all three squads forward. In some instances, carriers of forward platoons will be positioned with the rear platoon, providing overwatching fire. All infantry are dug in as well as time permits in two- or three-man positions.



Platoons prepare squad strongpoints with up to 100 meters between squads.

Alternate positions are prepared. Carriers are dug-in. Tanks in defense positions are dug-in by unit means (dozer blades, explosives, etc.). Machineguns may be set up on a ground mount in front of tanks and manned by the driver. Each position is connected to its tank by a trench.

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CONDUCT OF THE DEFENSE

Reconnaissance elements and forward detachments in the security zone defend within their capabilities along major avenues of approach. In addition to attriting an advancing enemy, these elements strive to identify main attacks and halt or delay them by forcing them to deploy into combat formations.

As an attacker closes on the main defense belt, a series of security outposts take him under continuous surveillance and a constant volume of long-range fire. The security outpost line attempts to deceive the attacker as to the location of the main defense belt and cause him to mass his troops without becoming closely engaged.

The attacker approaching the main defense belt will be successively hit by artillery; AT missiles and guns at ranges up to 3000 meters; tanks at 2000 meters and less; direct fire field artillery and recoilless guns at 1000 meters; and by infantry weapons between 600 and 400 meters. At about 400 meters from the main defense belt, intensive preplanned artillery and mortar barrages are fired. The tempo of defense fire increases as the attacker closes and when he has been canalized into kill zones or is attempting to negotiate obstacles, including dense and numerous minefields.

Defending companies and battalions stay in place until overrun or ordered to withdraw; however, occupation of alternate and supplemental positions within the defense area is normal. Unengaged units adjacent to threatened positions may be employed to attack the flanks of attacking forces. Local counterattacks, employing small, mobile tank forces may be employed by the battalion. Larger counterattack forces at regiment and higher are normally committed to reduce significant penetrations.

Should the assault be repelled, the commander concentrates his fire on those attacking adjacent units. When time permits, he redistributes his firing positions, shifts key weapon locations, orders the repair of trenches and obstacles, replenishes ammunition and prepares for further enemy attacks.

THE WITHDRAWAL

All defense plans include a contingency plan for a withdrawal. A withdrawal may be conducted to occupy more favorable defense positions or to consolidate the defense. The withdrawal of forces in contact normally consists of two stages: disengagement and retirement.

The withdrawal order specifies the route(s) of withdrawal, formation, and intermediate delay positions. Whenever possible, disengagement takes place suddenly at night or when visibility is limited.

The companies (minus designated platoons) of the first echelon battalion withdraw on order through the positions occupied by the battalion of the regimental second echelon. The second echelon battalion becomes the covering force for the regiment after the detachments left in the forward area withdraw through it.

Under cover provided by the second echelon battalion, the reinforced platoons rejoin their companies, and the first echelon battalion(s) commences the retirement.

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The disengagement of the main body of the battalion is covered by designated first-echelon platoons, reinforced with tanks, artillery, mortars, and engineers. The covering force, consisting of these platoons, and normally led by the battalion commander, remains in position and seeks to prevent the enemy from learning of the withdrawal by continuing operations. Should the enemy attack, the higher command may mount a counterattack or nuclear strike before disengaging the main body. Disengagement occurs under protection of the covering force, artillery fires, and smoke.

During a retirement, a motorized rifle company may be a rear, flank, or advance guard. In such a role it is reinforced with artillery, antitank weapons, tanks, and engineers.

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NOTES

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Section III.
ACTIONS ON CONTACT (US ARMY)

"Actions on contact" occurs when a moving unit sees the enemy for the first time or is shot at by the enemy. They often decide the outcome of the fight. The leading unit must quickly react to the situation.

Several things must automatically happen at once:

- **Deploy and report**
  - ***Bounding unit returns fire, moves to cover and reports.***
  - ***Overwatching unit suppresses.***
- **Develop the situation**
  - ***Call for indirect fire.***
  - ***Move to bring more effective fire against the enemy, test his strength and determine his dispositions.***
- **Choose a course of action. Figure out the best way to overcome the resistance. (Suppress and bypass, destroy by fire, attack mounted or dismounted, or withdraw).**
- **Report**
  - ***Update your initial report.***
  - ***Recommend a course of action.***

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Marking the enemy location for friendly overwatch elements and bringing in supporting fire is often the key to winning the fire fight quickly. When contact is made, enemy positions can be marked with smoke (GL) or tracers. Overwatching troops shoot at the enemy based on instructions from the element being fired on. Smoke is used to conceal exposed troops and to blind the enemy.

ACTION ON CONTACT WHEN RECEIVING ATGM OR OTHER AT FIRE

There are several types of enemy ATGMs. They have the following common strengths:

- **Long-range accuracy.**
- **High degree of killing power.**
- **Ease of movement.**
- **High reliability.**
- **Remote firing capability. AGTM gunners can be positioned at some distance from their missile launchers up to 15 meters from the Sagger and 80 meters from the BRDM.**

Enemy ATGMs also have weaknesses:

- **Gunners must be well trained.**
- **Minimum range limitations (about 500 meters).**
- **Slow missile speed (30+ seconds to fly to 3,000 meters).**
- **Requirement for good visual contact with both missile and target.**
- **Lack of responsiveness in tracking erratically moving targets.**
- **Saggers leave a smoke trail.**

The operator is the biggest weakness of the ATGM system. If you can kill or suppress him, his missile won't hit you.

Antitank guns/recoilless rifles. The enemy employs many antitank guns and recoilless rifles. Almost all their artillery guns can shoot direct antitank fire. An antitank gun does not leave a smoke trail as does the ATGM, but it does have a firing signature (flash, smoke, and dust) which is easier to detect then that of the ATGM. Recoilless rifles (RCLR) have an even more distinct signature than antitank guns. RCLR are often dug in but may have no overhead protection.

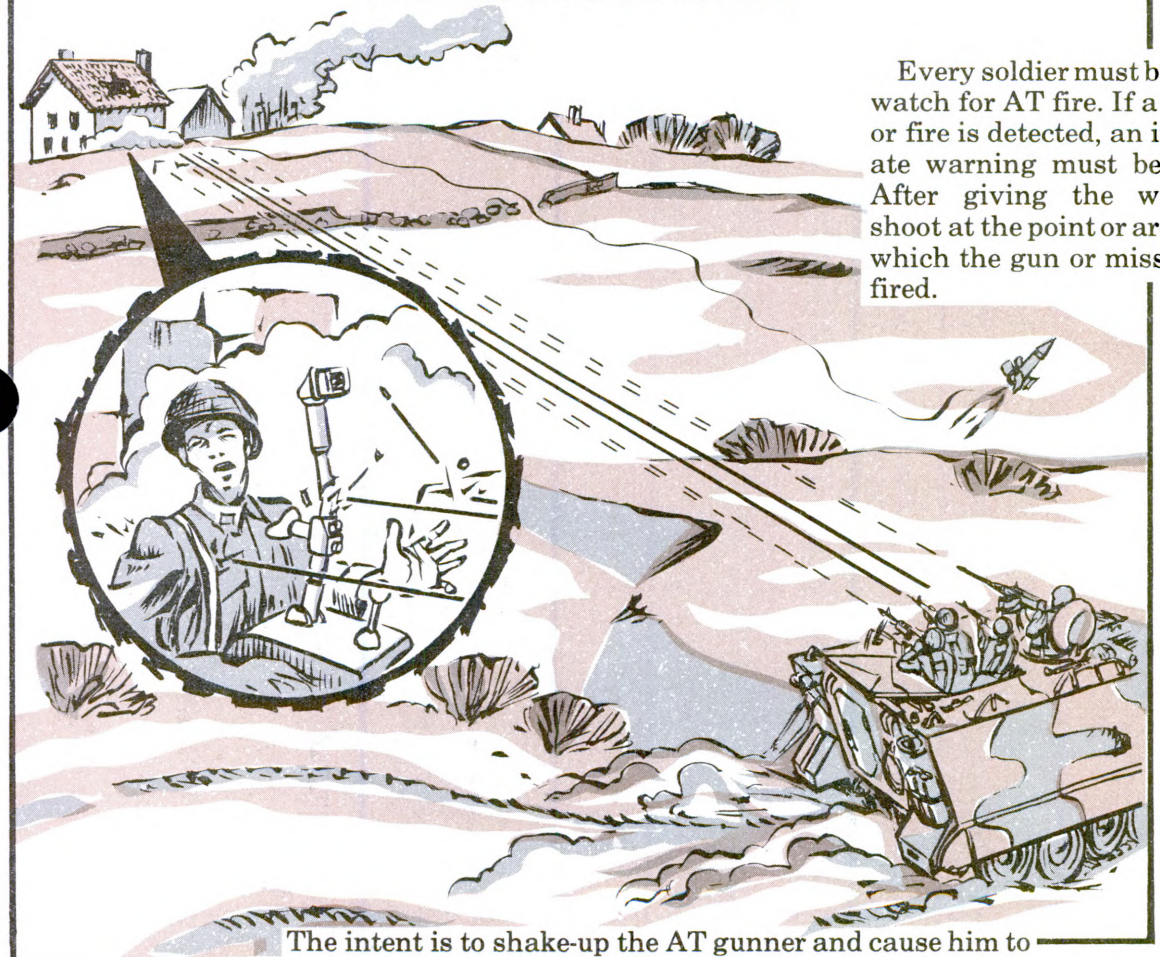
Tanks. Enemy tanks and BMPs all mount antitank guns. They can be employed in dug-in positions. Even though they have armor protection they can be suppressed to some extent by fire falling near them because dust

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and smoke will obscure their vision. They must see a target to hit it.

Some techniques to help you defeat ATGMs and other antitank weapons are:

REACT/SUPPRESS



Every soldier must be on the watch for AT fire. If a missile or fire is detected, an immediate warning must be given. After giving the warning, shoot at the point or area from which the gun or missile was fired.

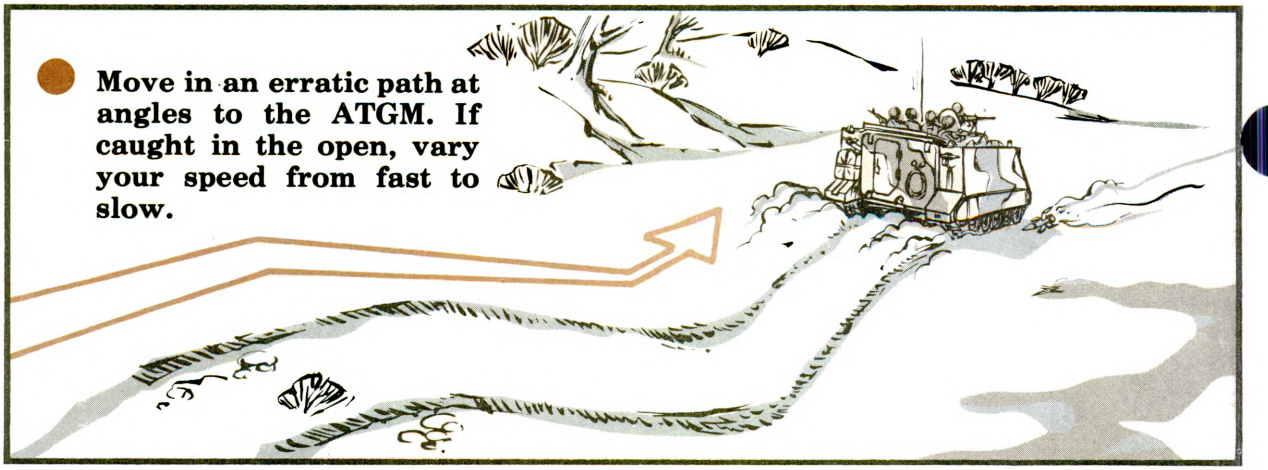
The intent is to shake-up the AT gunner and cause him to lose control of the missile or miss his second shot.

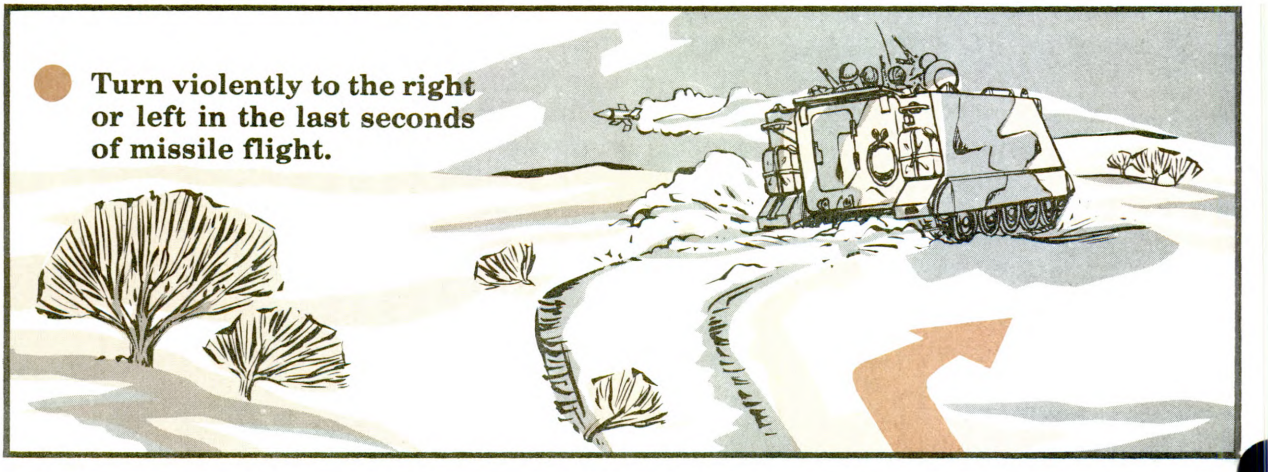
At the same time, the squad leader must order the APC driver to take evasive action.

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TO DODGE OR TAKE EVASIVE ACTION:







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GET SUPPORTING FIRE ON THE ENEMY

The platoon leader should request indirect fire on the enemy position and tell the overwatch to fire. If he doesn't know its exact location, he should get smoke between his platoon and the enemy's probable location. Remember that once the smoke is in, you will not be able to see targets because you won't be able to see either.



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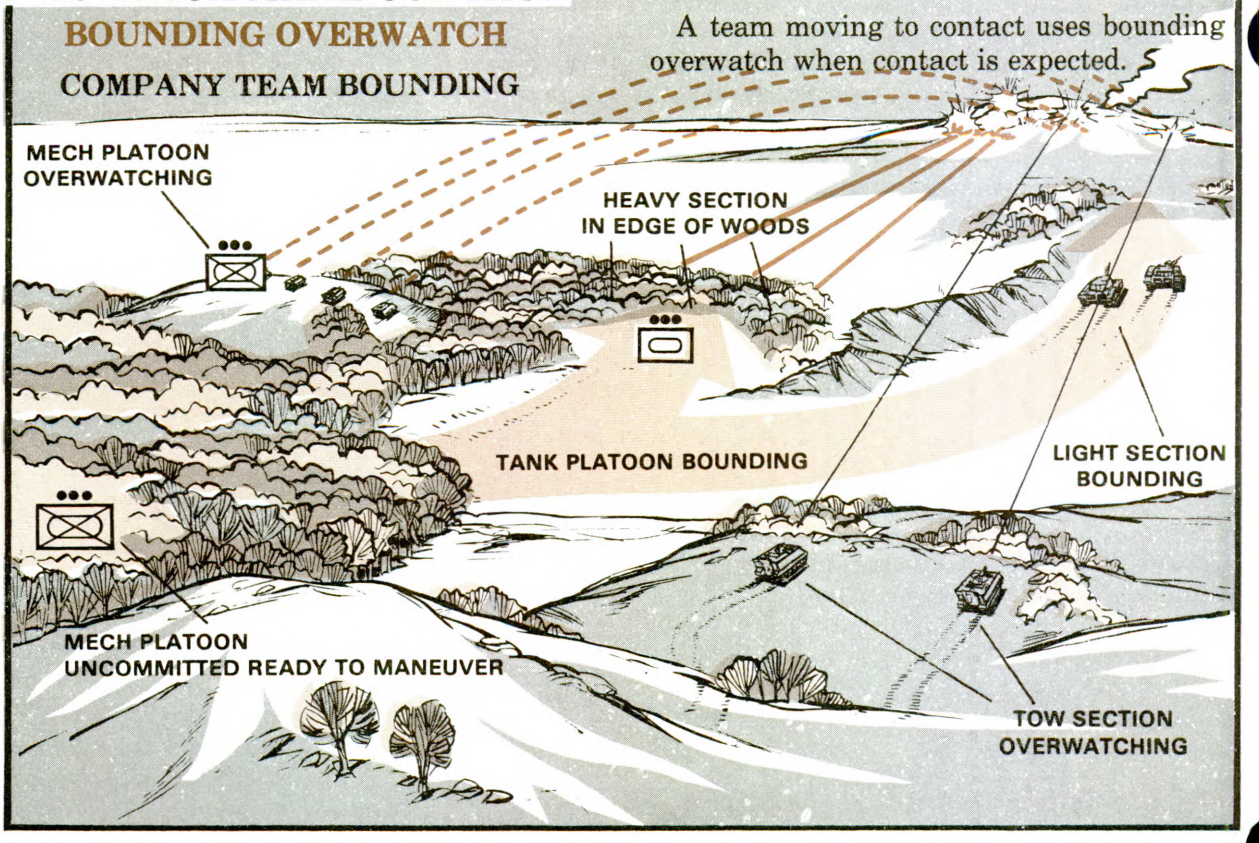
CONDITIONS UNDER WHICH CONTACT IS MADE

When contact is made by the company or company team, the actions of the platoon will be quite different and dependent on what role it has had in the movement. When contact is made, the platoon may be:

- **overwatching tanks which make contact. This will often be the case, since tanks lead in bounding or traveling overwatch, except in cases described below.**
- **leading dismounted.**
- **leading mounted. This could occur when moving without tanks attached; when crossing a water obstacle; or when a team commander wants a woodline secured before tanks bound, and the quickest and safest way to get the infantry there is mounted.**

Each of these conditions will be discussed.

ACTIONS WHEN INFANTRY IS OVERWATCHING TANKS WHICH MAKE CONTACT



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When contact is made, the overwatch immediately suppresses the enemy to cover the bounding platoon. It may be necessary to reposition carriers to get the most effective fire on the enemy.

The bounding platoon will probably be busy evading enemy fire, deploying, and shooting back at the enemy. If its leader doesn't call for indirect fire support, and the team commander is not in a position to do so, the overwatch platoon leader or his FO calls for it. He will also report the situation, as he sees it, to his team commander.

If the tanks receive AT fire, overwatching APCs should immediately shoot at the enemy and move to positions which cover them better from enemy fire.

When a carrier crew spots an enemy AT gun or Sagger fired or ready to be fired at a friendly tank, it gives the warning and fires at the spot where the missile came from, based on the smoke trail or gun flash.



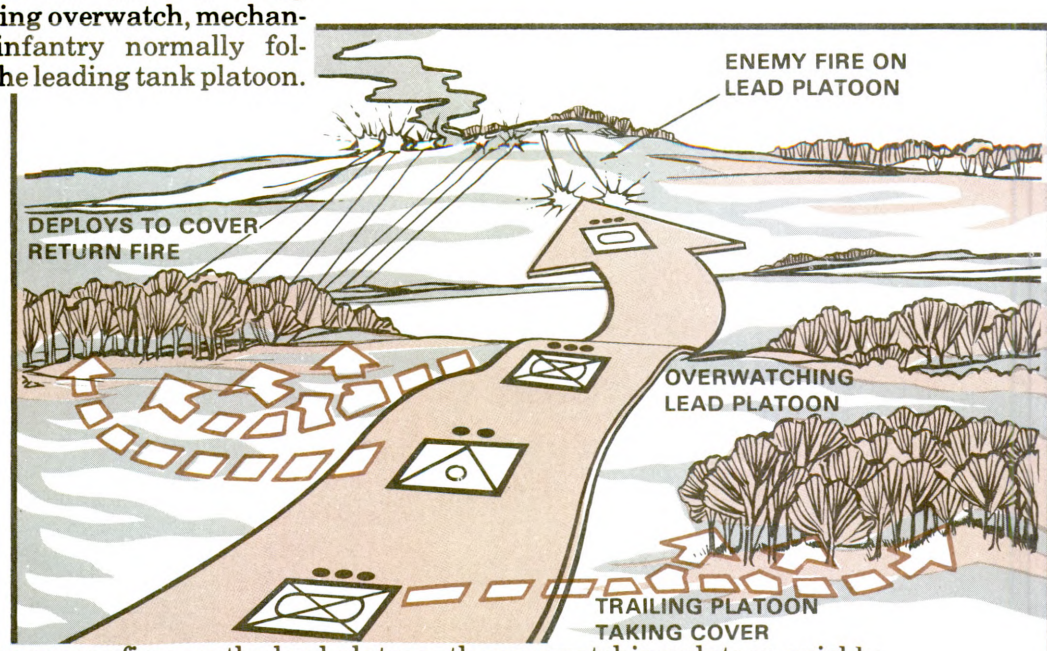
Other APCs shoot at points about 100 meters right and left of that spot. Usually, APCs left of the base (spotting) APC shoot left, and APCs right of the base APC shoot right. This distributes fire rapidly, and increases the chances of suppressing the enemy gunner(s). The platoon leader then adjusts the fire distribution as necessary.

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When you spot an enemy tank or antitank weapon whose gunner has not seen you or the maneuver element, immediately give warning on the platoon and company nets. When an enemy tank is spotted, the squad that spots it gives the warning and shoots its Dragon or its machinegun if it is in range. The machinegun fire will not damage the tank, but it marks it so that a Dragon, TOW, or tank can locate and hit it. This frequent role for machineguns in the offense dictates tracer ammunition. But tracers also give away your position--another reason for selecting good, covered positions when overwatching.

TRAVELING OVERWATCH

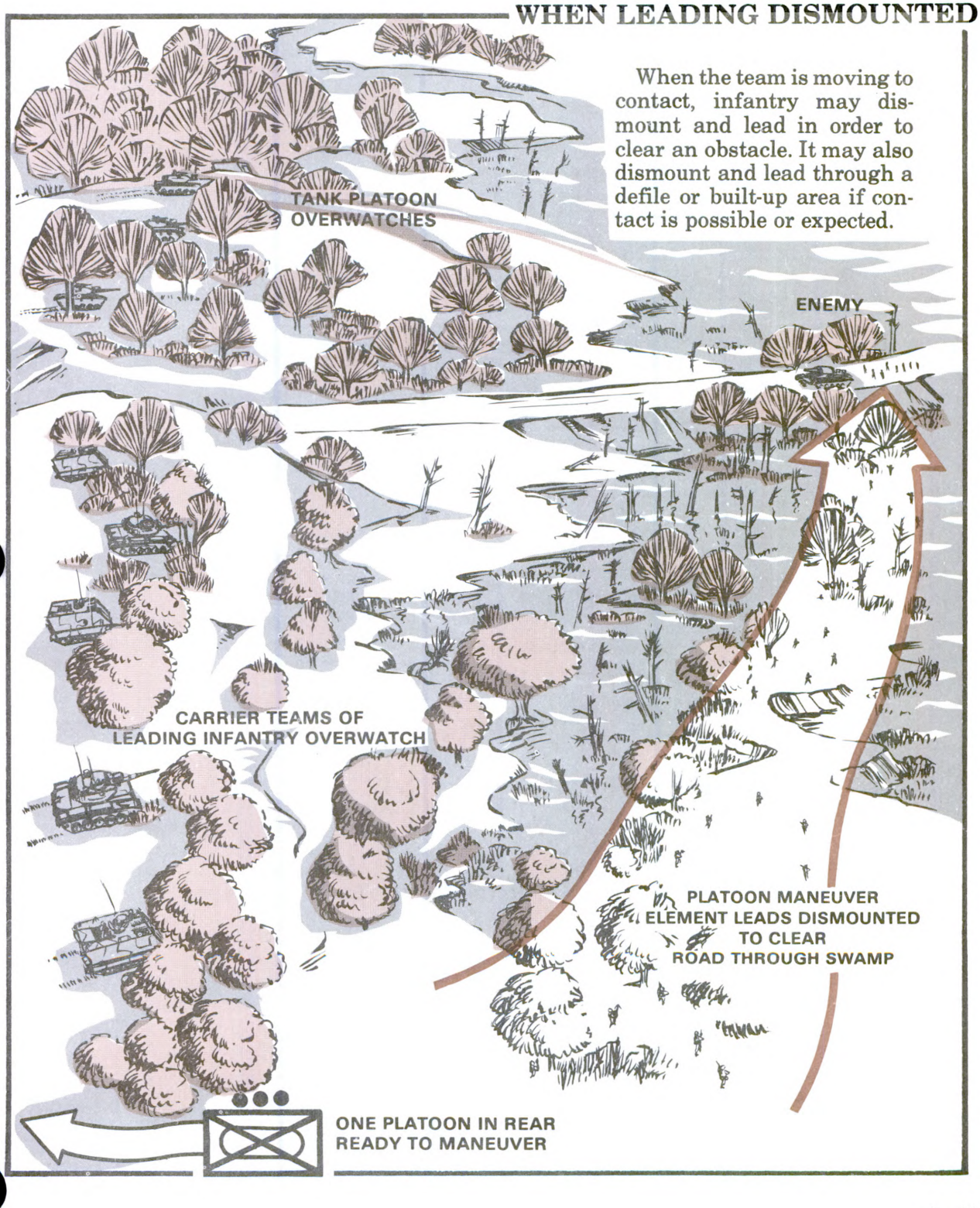
When the team is using traveling overwatch, mechanized infantry normally follows the leading tank platoon.



If the enemy fires on the lead platoon, the overwatching platoon quickly deploys to covered firing positions and returns the fire. It avoids moving into areas where it may be caught by enemy fire. The platoon may dismount men to reduce their vulnerability to enemy AT fire or to increase the fire with which it supports the lead platoon. The trailing platoon takes cover and waits for orders from the team commander. It can move to fire and/or maneuver against the enemy.

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ACTIONS ON CONTACT WHEN LEADING DISMOUNTED



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When your platoon leads dismounted, use bounding or traveling overwatch. Position carrier teams to overwatch the platoon maneuver element as it goes forward.

If movement is done properly, only the lead maneuver team will be initially taken under fire. It will take cover and return fire. If necessary, the overwatching maneuver teams will maneuver forward or to the flanks to a position where they can support the lead team by fire. They do not go where they will be caught in the fire directed at the lead maneuver team.



The squad leader of the leading maneuver team immediately reports the extent of contact to the platoon leader, to include:

- **Enemy strength and dispositions.**
- **Friendly casualties and actions.**

An example report is, "We are under fire from one enemy machinegun and at least four riflemen. They are on the edge of the woods 200 meters north. I am returning fire."

If the lead maneuver team has detected the enemy, and the enemy has not yet and probably will not spot it, the maneuver team deploys and reports but takes not action to alert the enemy. However, if it is obvious that unless the squad starts the fight immediately the enemy will react first or get away, SHOOT at the enemy. Immediate reaction is the key to winning a surprise engagement--the side that shoots first and maintains pressure will usually win.

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TRAILING/OVERWATCHING MANEUVER TEAMS

Unless otherwise directed by the platoon leader, the maneuver teams following or overwatching the lead squad will immediately deploy and return fire.

OVERWATCHING CARRIER TEAMS

When overwatching the dismounted maneuver element, the carrier teams must know where it is at all times so they will not shoot at it by mistake. When enemy contact is established, the primary role of the overwatching carrier teams is to suppress or destroy those enemy weapons which most endanger the maneuver element. Tanks and TOWs in the overwatch will hit enemy tanks and BMPs.

PLATOON LEADER

The platoon leader reports the situation to the team commander, and moves forward to a point where he can see the action. If feasible, he gets indirect fire on the enemy. He directs the employment of trailing squads to points where they can shoot at the enemy and he spots targets for overwatching tanks, APCs, and TOWs to shoot. The degree of resistance and volume of enemy fire influences the platoon leader's recommendation to the team commander on the action to take. If enemy resistance is light, he can recommend that his platoon, with supporting fire, attack to overcome the resistance. He does not normally maneuver to overrun the enemy without the team commander's permission. If the enemy resistance is no great threat and bypass routes are available, he can recommend that the team bypass the enemy. If enemy resistance is strong, he tells the team commander that the platoon cannot overcome the enemy by itself.

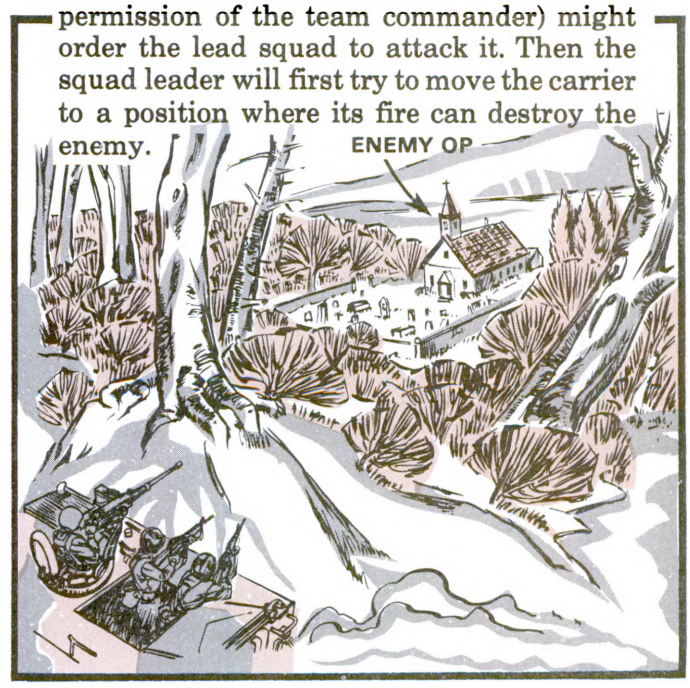
INFANTRY LEADING MOUNTED

LEADING SQUAD

When the leading squad receives fire, several actions take place at once--the TL/gunner and the men in the cargo hatch immediately return fire, the driver moves the carrier to a covered position, and the squad leader reports to the platoon leader.

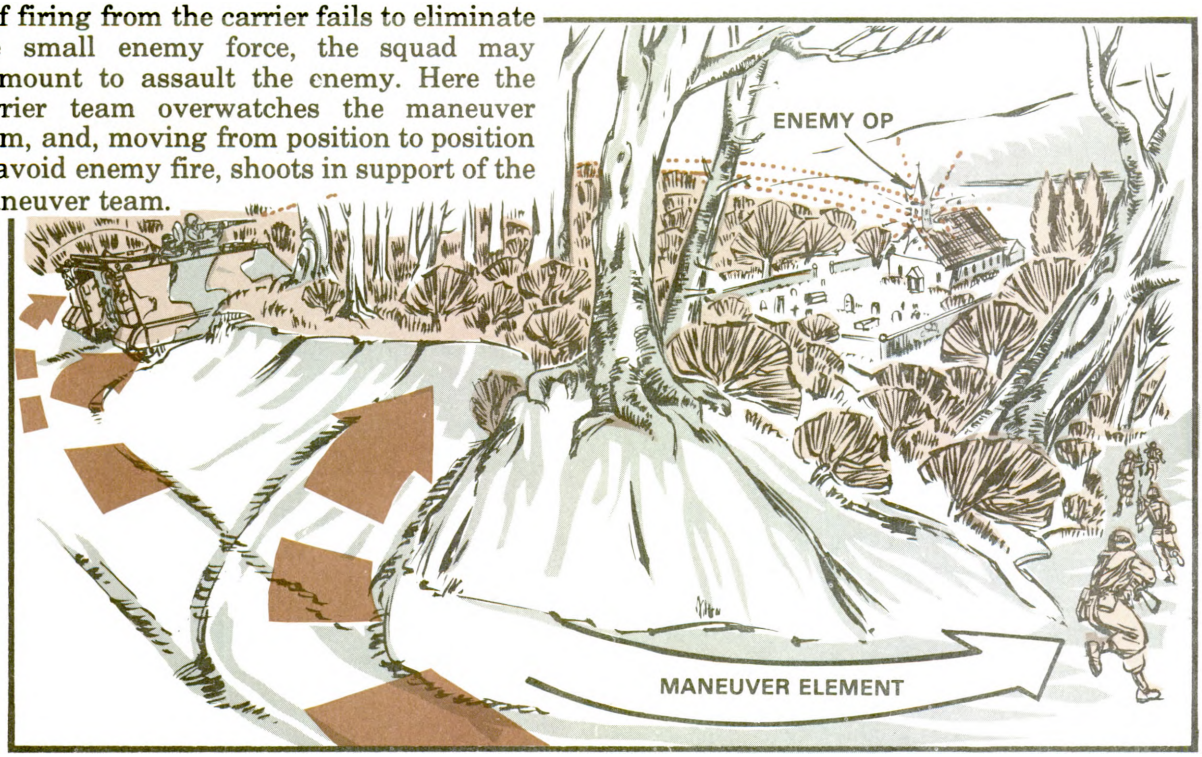
When a carrier is subjected to AT fire, it must first move to take cover. It then seeks a position from which it can shoot the enemy.

When a small enemy force is discovered, e.g., an enemy OT, the platoon leader (with permission of the team commander) might order the lead squad to attack it. Then the squad leader will first try to move the carrier to a position where its fire can destroy the enemy.



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If firing from the carrier fails to eliminate the small enemy force, the squad may dismount to assault the enemy. Here the carrier team overwatches the maneuver team, and, moving from position to position to avoid enemy fire, shoots in support of the maneuver team.



PLATOON LEADER

As with dismounted movement, the platoon leader moves to a position where he can build up fire on the enemy and judge the degree of enemy resistance. He then recommends a course of action to the team commander.

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Section IV.
CLOSING WITH AND DESTROYING THE ENEMY

Once contact with the enemy is made, the platoon may be told to close with and destroy him. Based on the team commander's decision, the platoons may--

- **close with the enemy mounted and remain mounted all the way across his position.**
- **close with the enemy mounted and dismount on or near his position.**
- **dismount, close with the enemy on foot, and destroy him.**

The phrase "close with the enemy" refers to how the squad, platoon, or team gets from the point where contact is made to the positions occupied by the enemy. It does not refer to a "charge" against enemy positions, although in some rare cases which will be discussed later, that may be the best way.

When possible, units close with the enemy using fire and maneuver, taking advantage of available cover and concealment. In a mounted attack, tanks lead. Mechanized infantry follows the tanks and stays mounted as it closes with the enemy, unless there is an overriding reason why it should dismount. Infantry may be forced to dismount by obstacles, terrain, or enemy fire--but only with permission of the team commander or if its carrier is disabled.

To hit you with his AT weapons, the enemy must see and track your carriers. So when you close mounted with him, try to use covered routes.

CLOSE MOUNTED, REMAIN MOUNTED

The team commander may direct this method when the platoon is part of a tank-infantry team and when--

- **enemy resistance is light.**
- **enemy antitank weapons have been destroyed or can be suppressed.**
- **terrain allows rapid mounted movement onto and through the enemy positions.**

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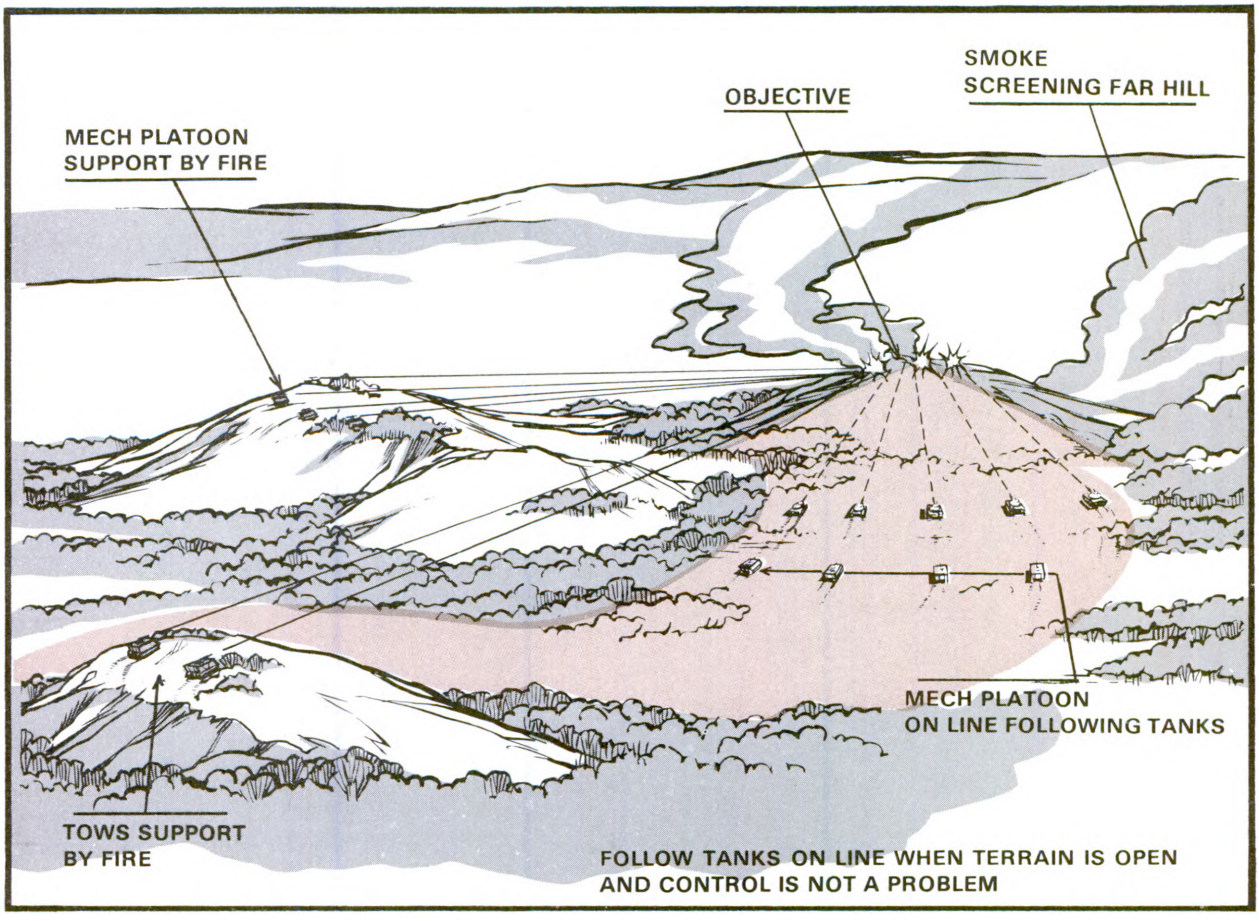


Tanks lead and place a heavy volume of fire on enemy positions. Mounted infantry follows behind the tanks and suppresses probable antitank weapons' positions.

The platoon leader keeps his APCs close enough to the tanks so they can shoot to the flanks and rears of the tanks, yet far enough behind so that fire directed at the tanks does not hit the APCs. Protection of the tanks is the platoon's prime task. Depending on the closeness of the terrain, the platoon may follow the tanks in a line or in a column.

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FOLLOWING TANKS ON LINE



Use this method when the terrain will allow the APCs to move behind the tanks and allow the platoon leader to see all of his APCs. The platoon leader's carrier is the base APC and the others in the platoon guide on it during movement. He directs each APC to follow (generally) a specific tank. APCs on the flanks of the formation must cover the team's flanks.

Each squad leader controls the movement of his carrier and directs the fire of his squad. He follows in the tracks of one of the tanks, watching the platoon leader's carrier to determine how far to the rear of the tanks he should be. If he loses sight of the platoon leader, the squad leader keeps his carrier close enough to support the tank he is following. When a tank makes a short halt to fire, the following APC will reduce its speed until the tank resumes movement. If the tank is put out of action, the APC follows another tank.

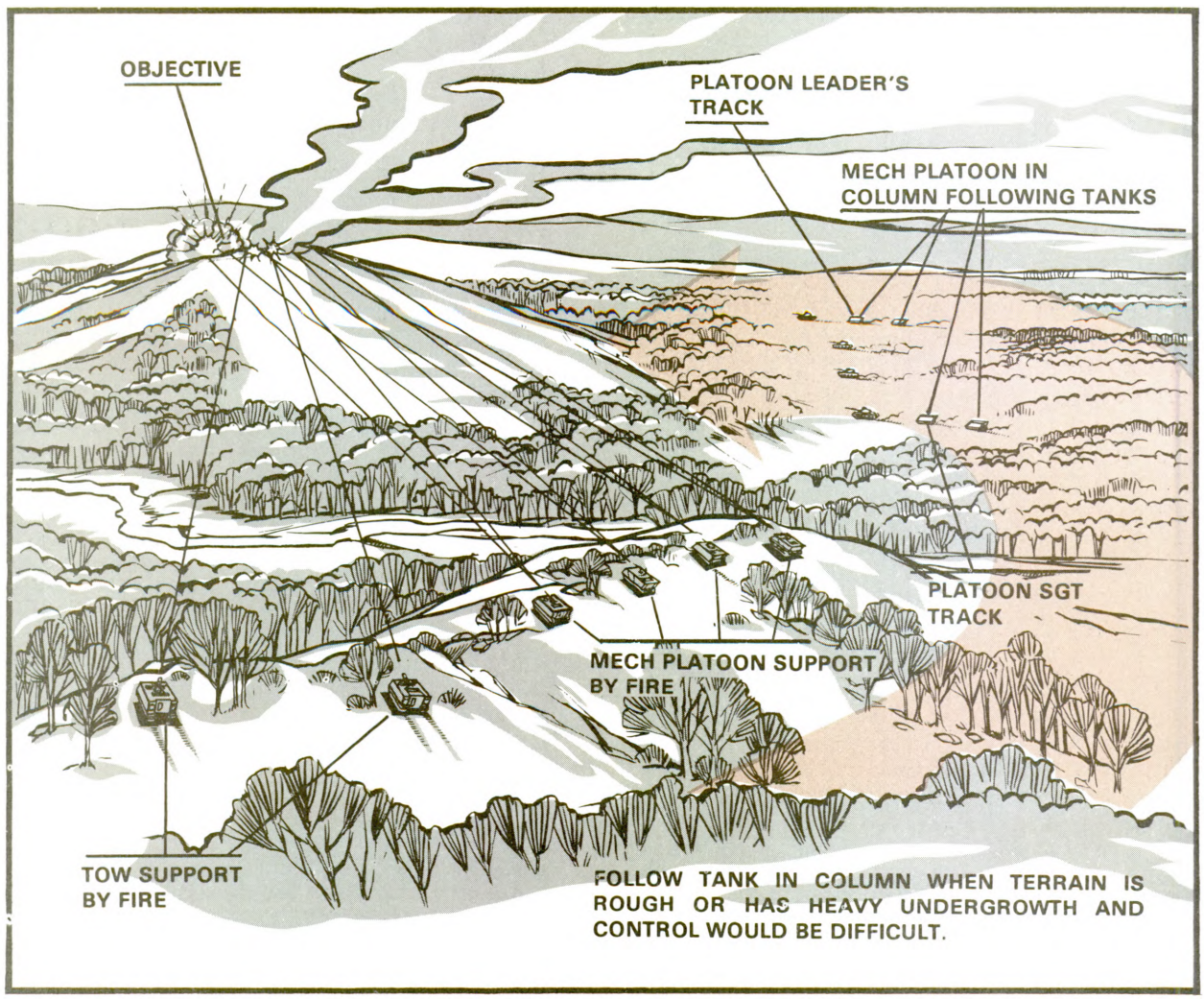
Small arms fire from cargo hatches is directed against close-in targets. As the tendency is to shoot too high, leaders must make their men shoot low. The cal .50 machineguns shoot at more distant targets. Squads modify their sectors of fire based on

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their positions. Squad leaders must see that their men do not accidentally shoot at friendly carriers or tanks. Both cal .50 machinegun fire and the 40-mm HEDP round will penetrate the side of an M113 and will damage tanks. Small arms fire can kill tank commanders and troops firing from other carriers. It can penetrate the sides of APCs at close range.

In addition to suppressing antitank weapons and protecting the flanks and rear of a tank, each squad must protect its own flank and rear. Assign areas of responsibility to each soldier positioned in the cargo hatch. A soldier on each side is made responsible for his flank of his APC. He also shoots suppressive fire to the rear of tanks and between adjacent APCs. One man covers the rear of the APC.

FOLLOWING TANKS IN COLUMN



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Use this method when there is heavy undergrowth because--

- **There is a danger that if you are on line your squads will not be able to see to the flanks and may accidentally shoot each other.**
- **The terrain is rugged and you have to pick your route carefully and quickly in order to keep up with the tanks.**

The platoon leader and one squad follow in column behind one flank tank. The platoon sergeant and the remaining squad follow the other flank tank. This allows you to secure the flanks of the team as it assaults and helps the platoon to arrive on the objective with the tanks.

MOVING OVER ENEMY POSITIONS

A critical part of a mounted assault is moving over the enemy position. Enemy soldiers will usually be down in their positions, protected from direct fire. As you move over the position, carriers should slow down so your men can shoot into and drop grenades into enemy positions. Carriers must keep up with the tanks. Troops must be alert for enemy antitank gunners who wait for armored vehicles to pass over their positions and then pop up to hit them from behind.

CLOSE MOUNTED, DISMOUNT ON OR NEAR POSITION

The team commander normally uses this method when tanks and infantry are working together, and when --

- **the enemy's positions must be mopped up.**
- **the enemy's antitank guns can be suppressed and the terrain allows you to move mounted onto the position.**

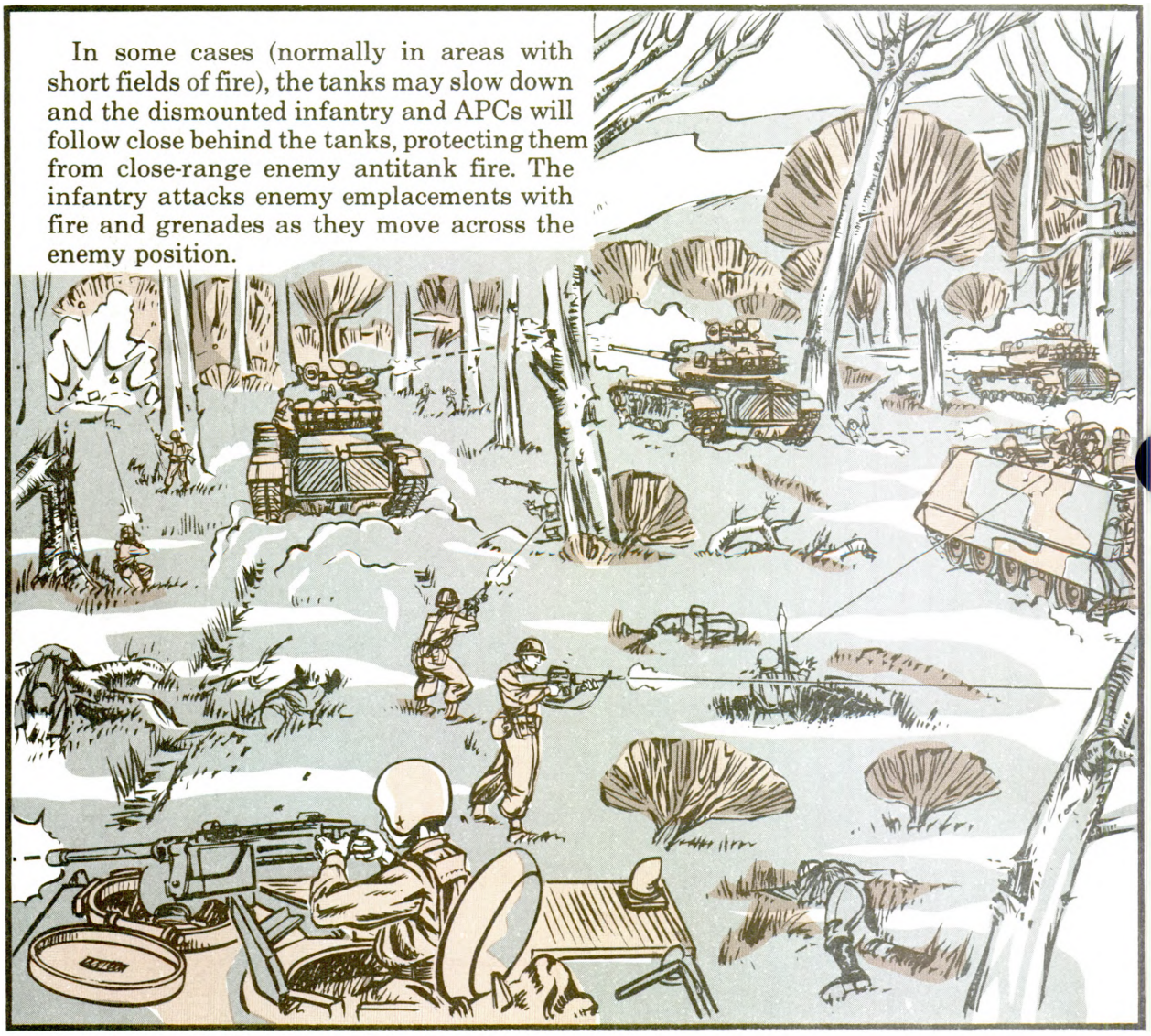
This method is conducted initially like the first. The platoon is told to dismount either just before it reaches the enemy or on, or behind, or to the flanks of his position. In any case, the team commander will state when the platoon is to dismount and what it is to do once on the ground. The dismounted infantry clears enemy fighting positions by maneuver team or buddy team fire and maneuver. One element fixes the enemy position with fire and the other maneuvers closer to the position to destroy it with grenades, demolitions, or fire.

When the maneuver team dismount, the carrier teams come under the control of the platoon sergeant. They continue to follow the tanks onto the objective, firing at targets to the flanks and rears of the tanks. When the

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tanks stop, the carrier teams follow the orders or actions of the platoon sergeant. He deploys the APCs in protected firing positions from which they can support the tanks and secure the objective.

In some cases (normally in areas with short fields of fire), the tanks may slow down and the dismounted infantry and APCs will follow close behind the tanks, protecting them from close-range enemy antitank fire. The infantry attacks enemy emplacements with fire and grenades as they move across the enemy position.



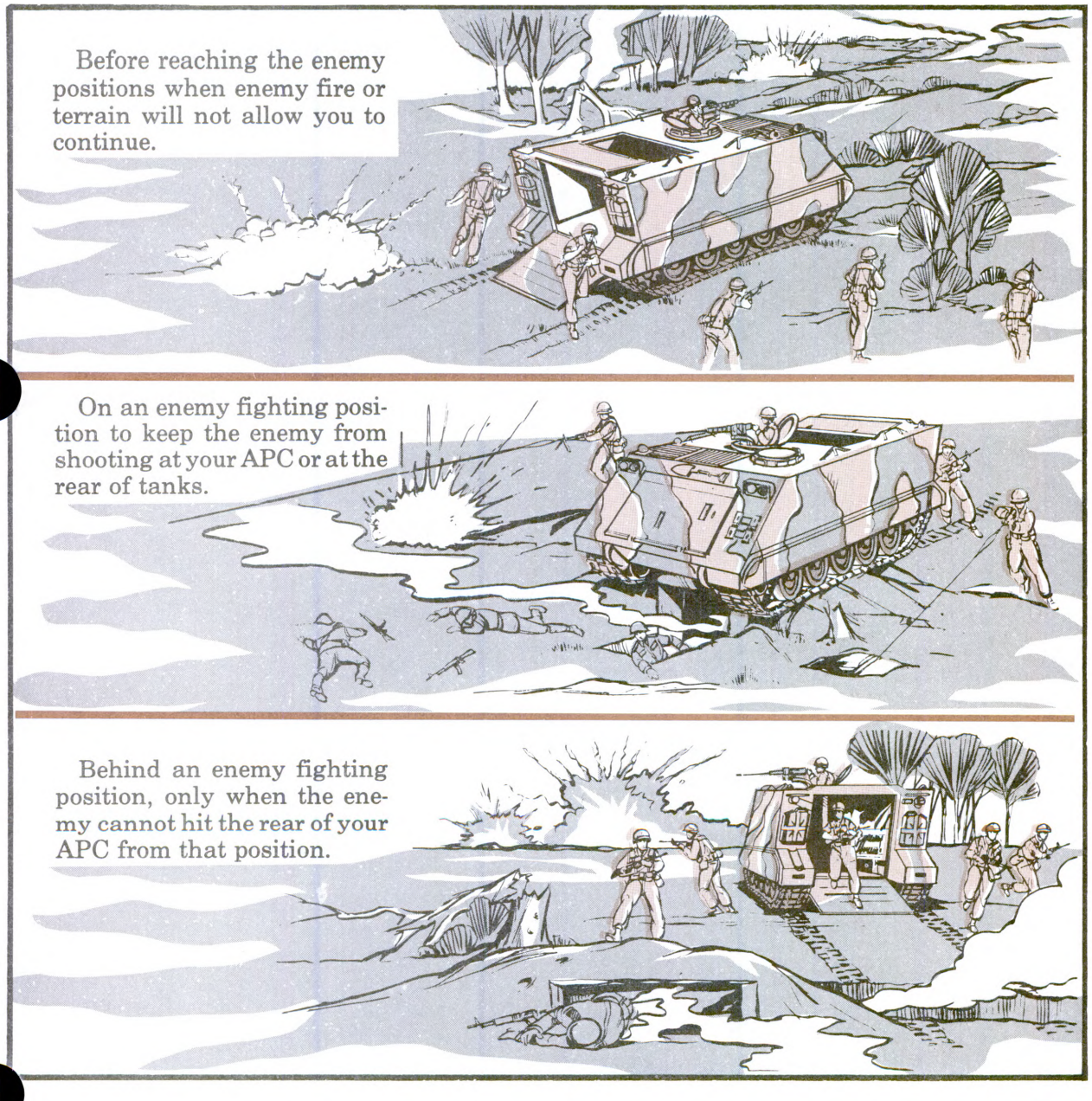
WHO DISMOUNTS

The platoon leader normally has predesignated maneuver and carrier teams from each squad. He modifies this organization as required by the situation (app L).

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Regardless of whether the squads dismount on or near the enemy position, the carriers are usually controlled by the platoon sergeant once the maneuver teams dismount. The platoon leader will have as many men as practical in his maneuver element unless enemy resistance is very light.

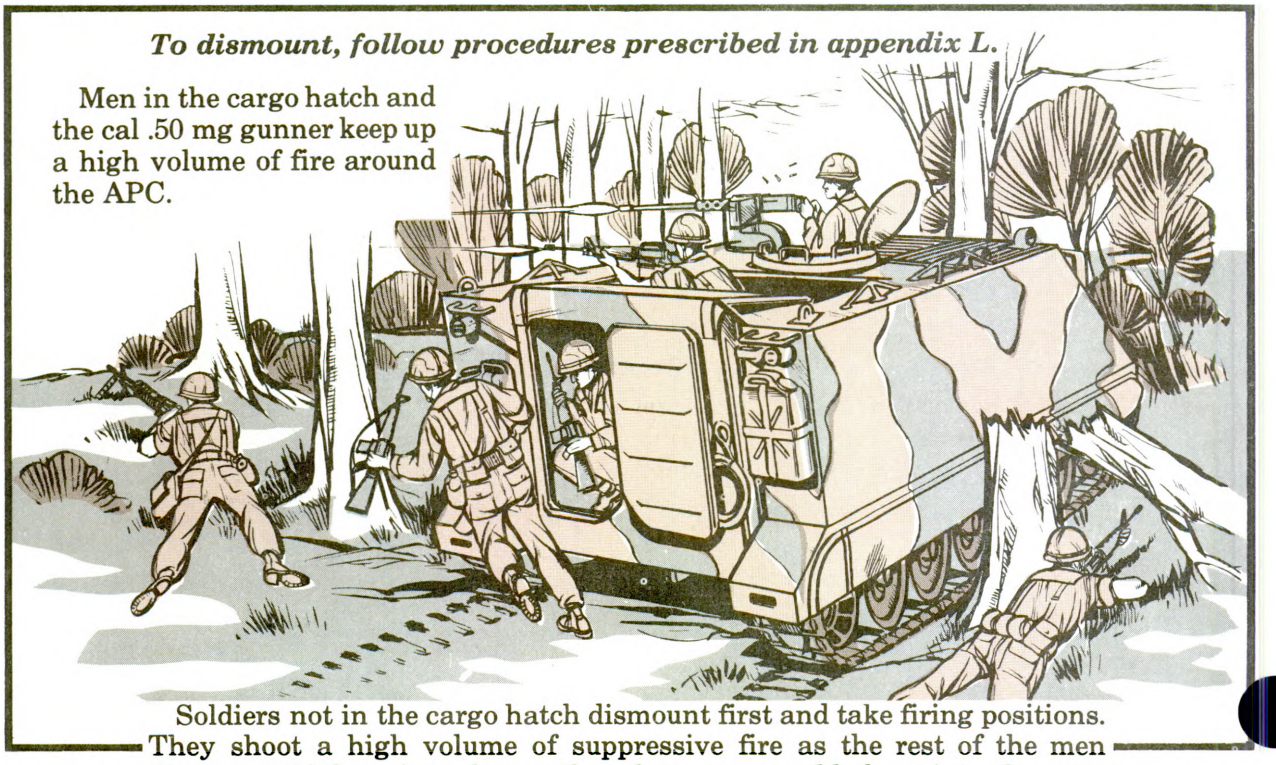
WHERE TO DISMOUNT



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HOW TO DISMOUNT

To dismount, follow procedures prescribed in appendix L.



Soldiers not in the cargo hatch dismount first and take firing positions. They shoot a high volume of suppressive fire as the rest of the men dismount. If there is a chance that the enemy could shoot into the open ramp, use the combat access door. The squad leader must decide if the rapid dismounting offered by dropping the ramp offsets the temporary loss of armor protection. Dismounting on enemy positions is difficult and must be done quickly without losing fire superiority.

DISMOUNT, CLOSE WITH, AND DESTROY

The team commander may decide to use this method when--

- **the enemy has strong defense positions and his antiarmor weapons CANNOT be suppressed.**
- **there is an obstacle to mounted movement.**

The platoon leader, based on the team commander's instructions, directs when and where the platoon will dismount. The place should be as close to the objective as cover and concealment allow. The carrier should be covered during the dismounting. When the maneuver teams dismount, they are controlled by the platoon leader and the carriers are controlled by the platoon sergeant. Tanks, TOWs, and carriers support the platoon maneuver element by fire as it closes with the enemy. When carriers support the attack with fire, they must not reveal their position until the dismounted maneuver teams are out of the probable beaten zone of enemy counterfire that may be directed at the carriers.

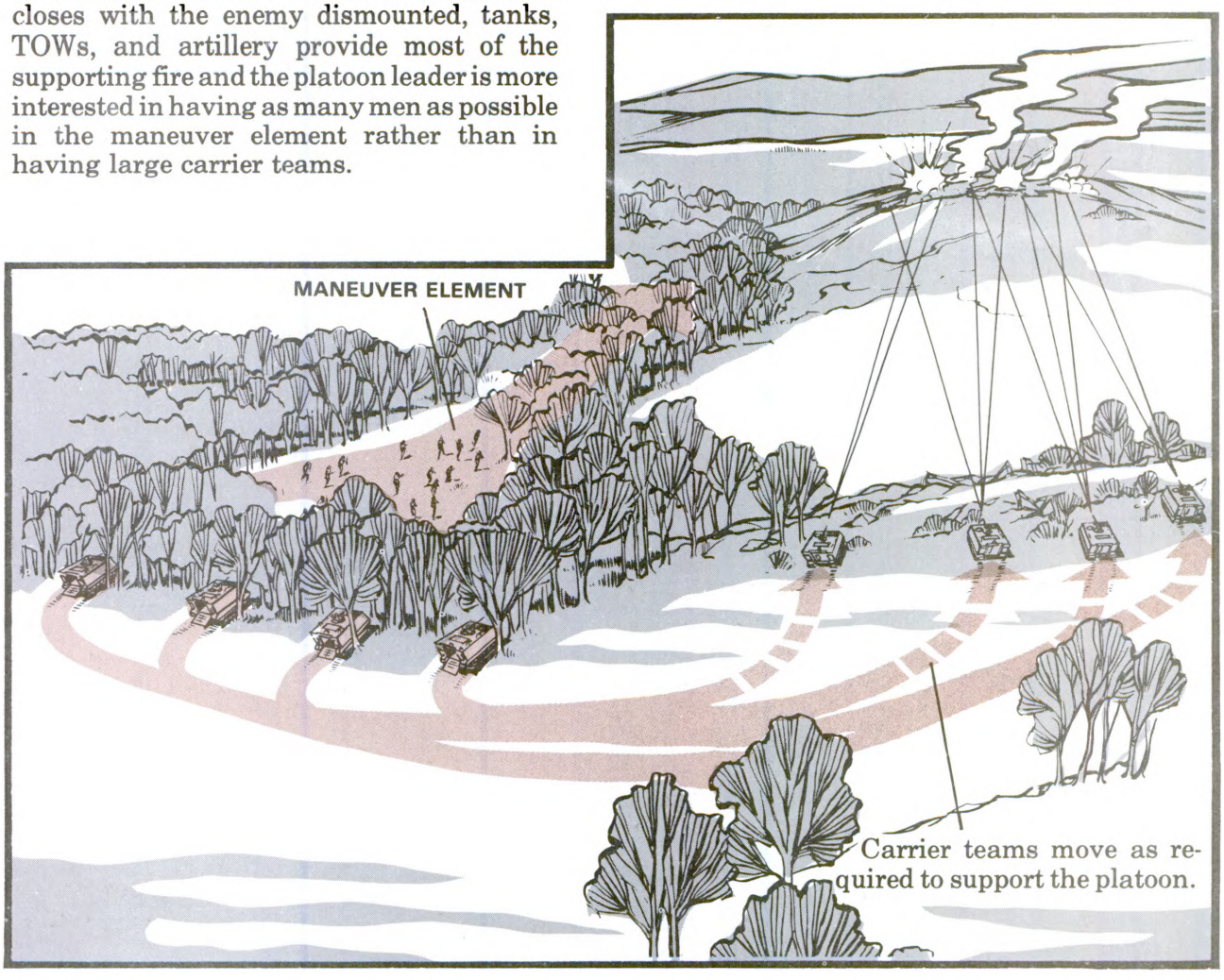
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The platoon leader's order states which men and weapons stay as the carrier teams, and which will be in the maneuver teams. Normally each maneuver team takes an M60 machinegun, several LAWs, and hand grenades. When attacking strong enemy defenses, satchel charges, Dragons, M202 FLASH, and similar equipment are often carried.

The number of men left with the carrier teams is based on the amount of other supporting fire available (the less other support, the greater the need for larger carrier teams) and the fields of fire available to carrier teams. Usually, when the platoon closes with the enemy dismounted, tanks, TOWs, and artillery provide most of the supporting fire and the platoon leader is more interested in having as many men as possible in the maneuver element rather than in having large carrier teams.

When the terrain allows, the squad carrier teams with the gunners shooting either the cal .50 machinegun or Dragon, as appropriate, support the dismounted maneuver element. Based on the need for additional platoon overwatch fire (lack of other support), more men may have to stay on the carriers or dismounted near them to man machineguns and Dragons.

The maneuver teams move as the platoon's maneuver element and deploy as directed by the platoon leader. They close with the enemy using movement or assault techniques which were discussed in Chapter 3.



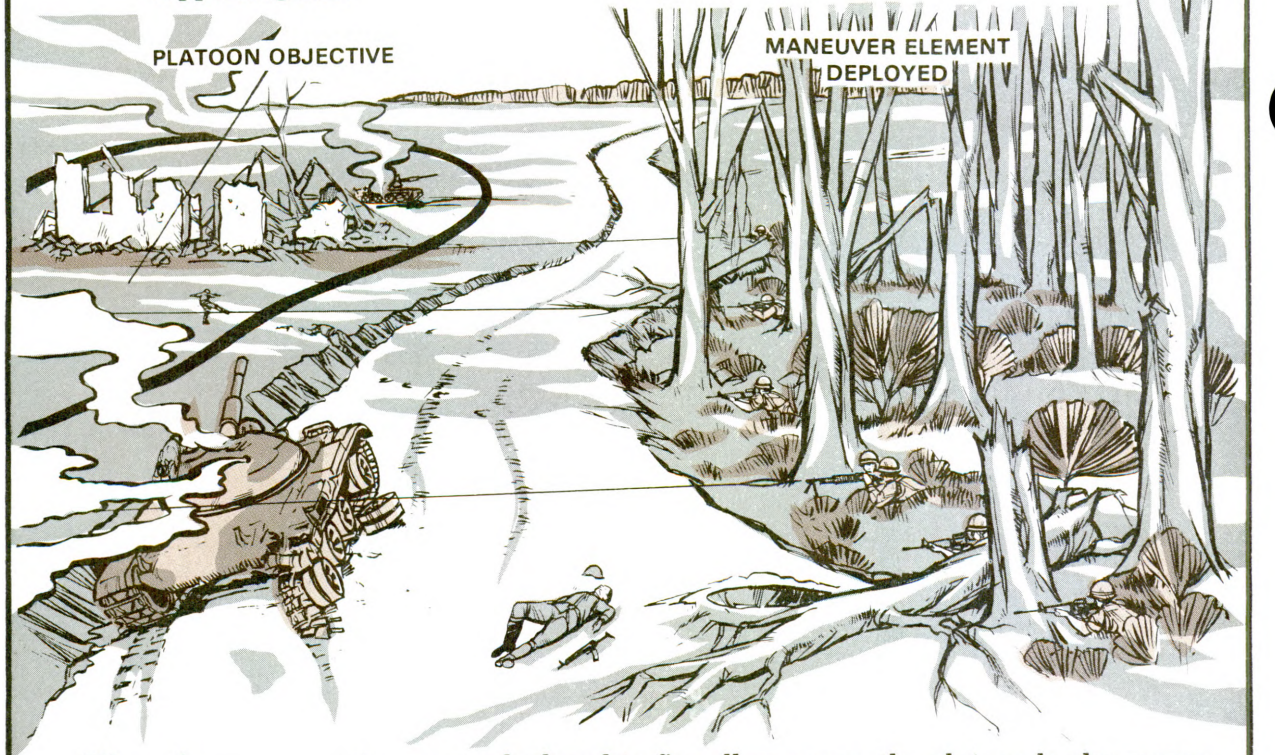
Carrier teams move as required to support the platoon.

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The platoon leader has the maneuver element advance on routes which have cover, and which won't mask overwatching fire. General routes forward are normally assigned to squads by the platoon leader. The rules for movement are applied as each man follows the route which has the most cover.

When not under enemy fire, the maneuver element uses traveling overwatch or bounding overwatch. Once the maneuver element starts forward, the objective must be suppressed. This allows bold, rapid maneuver onto and through the enemy position and forces the enemy to keep his head down.

At a designated place or when it comes under enemy direct fire, the platoon leader has the maneuver element deploy for the final assault to overrun the enemy. This is usually the last covered and concealed place before the enemy position. When the platoon deploys, the maneuver teams generally come abreast so they can all shoot as they assault. The platoon leader moves where he can best control the maneuver teams and coordinate supporting fire.

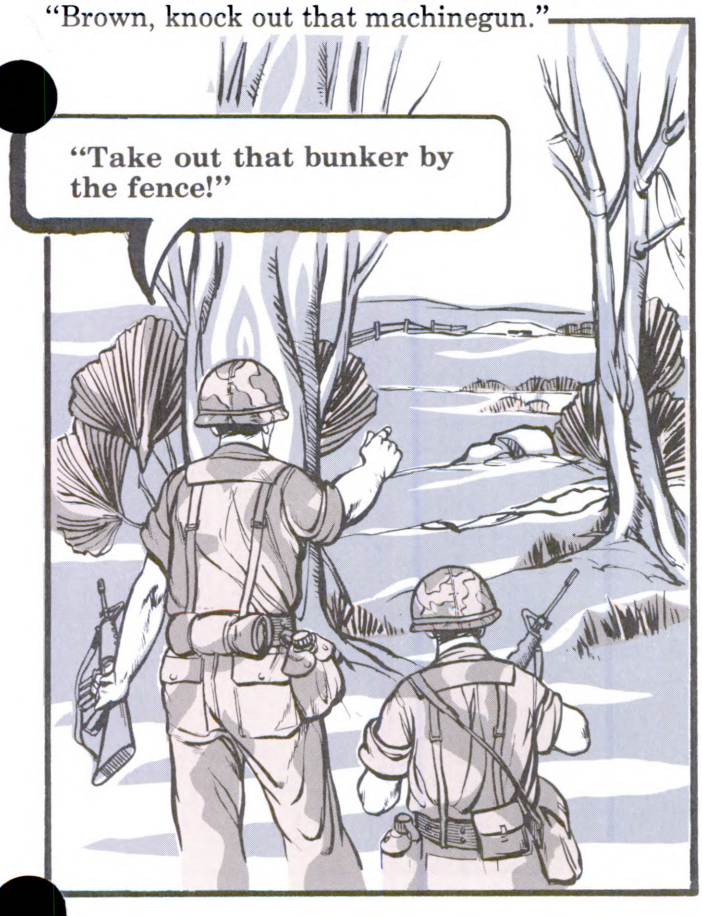


When the maneuver teams are deployed to fire all weapons, the platoon leader moves them forward using fire and maneuver. **The final assault is not a stand-up, on line rush!** In an assault, leadership by squad and team leaders is by example. It is difficult to make oral orders understood. "Follow me, and do as I do!" is the way they must lead.

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Squad and team leaders must lead the way through the enemy positions. They move using the best method for the situation and their men follow that example. The advance may be by crawling or by short rushes from covered position to covered position. It must be aggressive because you cannot slow down once the platoon is close to the enemy. As it fights its way through the objective (still using fire and maneuver), the platoon must avoid exposing itself to fire from enemy troops behind or to the flanks of the objective. Make sure that men don't bunch-up and present good targets to the enemy.

The platoon leader normally prescribes specific tasks for squads. The task may be oriented on the enemy, OR--the terrain, OR--a combination of both. For example, "SGT Smith, clear out that little grove of trees" or "Brown, knock out that machinegun."



Normally the entire platoon maneuver element will move forward to assault the enemy, overwatched by tanks, TOWs, and carrier teams. When overwatching fire from the tanks, TOWs, and APCs is not adequate to support the platoon attack, the platoon leader may set up a dismounted overwatch of Dragon(s) or machinegun(s) at the place where the platoon deploys.

When a Dragon is carried, it normally is kept under the platoon leader's direct control. It is fired only at important point targets such as enemy armored vehicles and key weapons. Lacking proper Dragon targets, the Dragon gunner fires his rifle. Normally the platoon leader will give instructions on what type targets should be hit with Dragon fire.

CONTROL OF FIRES DURING THE ASSAULT

Control of fires while fighting through the enemy position is one of the hardest jobs on the battlefield! If you are going to do it well in combat, you must

PRACTICE IT DURING TRAINING!

When the platoon maneuver element begins to fire and maneuver through the objective, squad leaders are the key to good fire distribution. They move near the center of their maneuver team so that they can be seen by their men. Most of the time they control fire of their maneuver teams by firing their own weapon in the area they want their men to fire. If the squad has worked and

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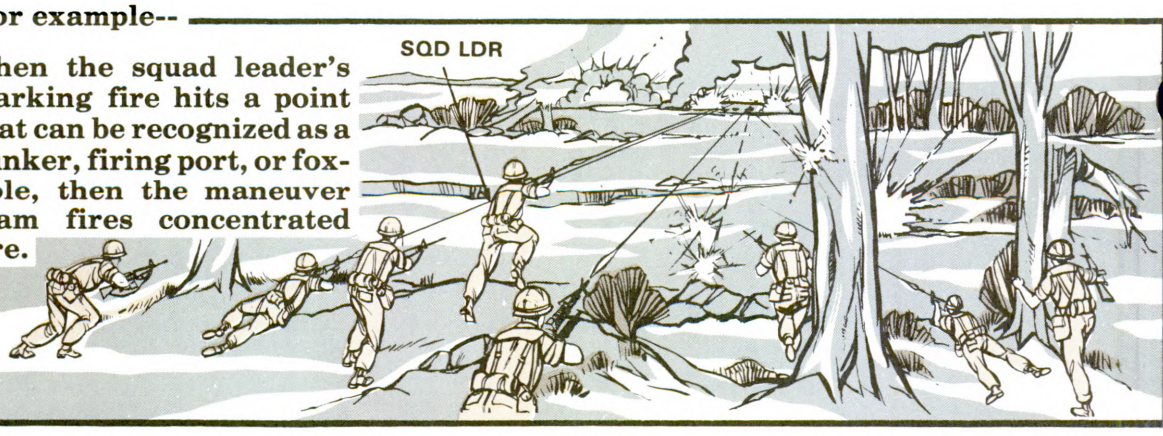
trained together, squad leaders can also use arm-and-hand signals. Short, easily understood orders can be used at times, but in many cases they will be drowned out by battle noise.

Since the squad leader is near the center of his maneuver team, he fires his weapon into the center of the squad objective to mark the target. Men on his right and left fire to the sides of the point where the squad leader's rounds are hitting. One technique is for the squad leader to carry a dual purpose weapon (grenade launcher) and fire a colored smoke to mark the center of the squad objective (the platoon leader can assign each squad a different color). Another technique is for the squad leader to use tracer ammunition in his personal weapon or to have an M60 machinegun stay with him and mark with it.

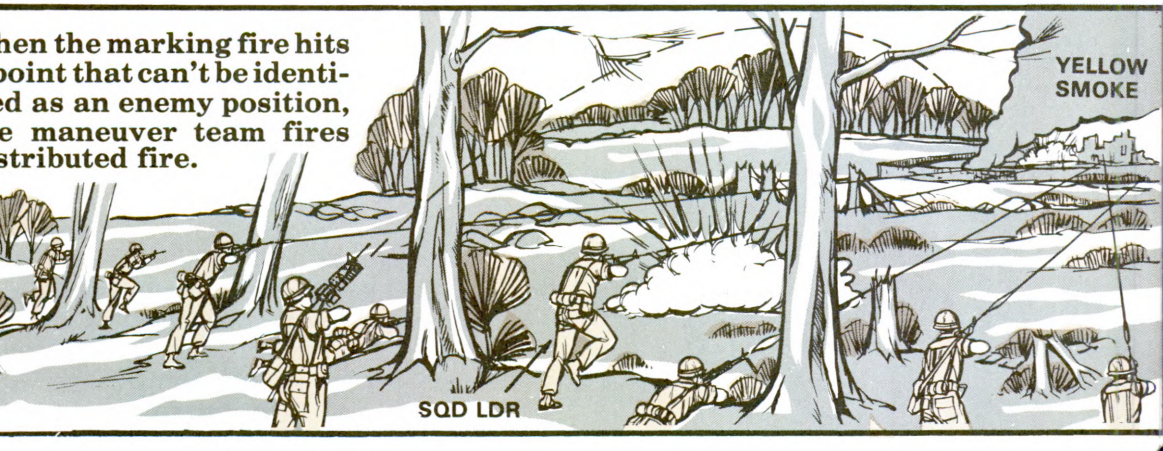
As stated earlier, squad objectives during the assault are usually specific points on the ground or specific enemy positions. The type of objective will influence the kind of fire distribution the squad leader wants his weapons to have. He may want concentrated fire or distributed fire (see p. B1). Since he may not be able to make oral orders understood and all of his men may not be able to see him, the squad should develop an SOP for when to use concentrated or distributed fire.

For example--

When the squad leader's marking fire hits a point that can be recognized as a bunker, firing port, or foxhole, then the maneuver team fires concentrated fire.



When the marking fire hits a point that can't be identified as an enemy position, the maneuver team fires distributed fire.

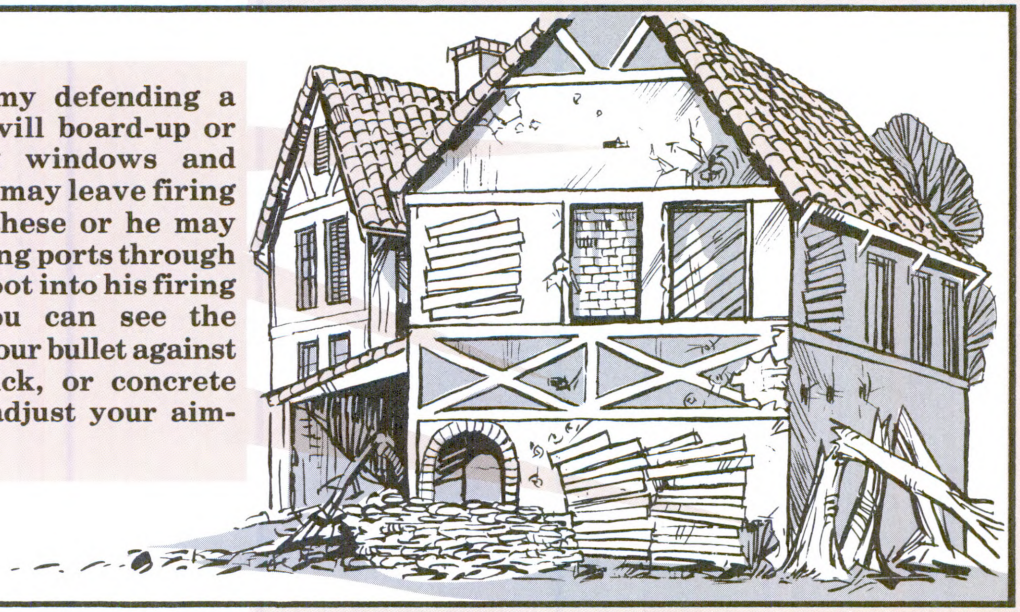


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BUILDINGS

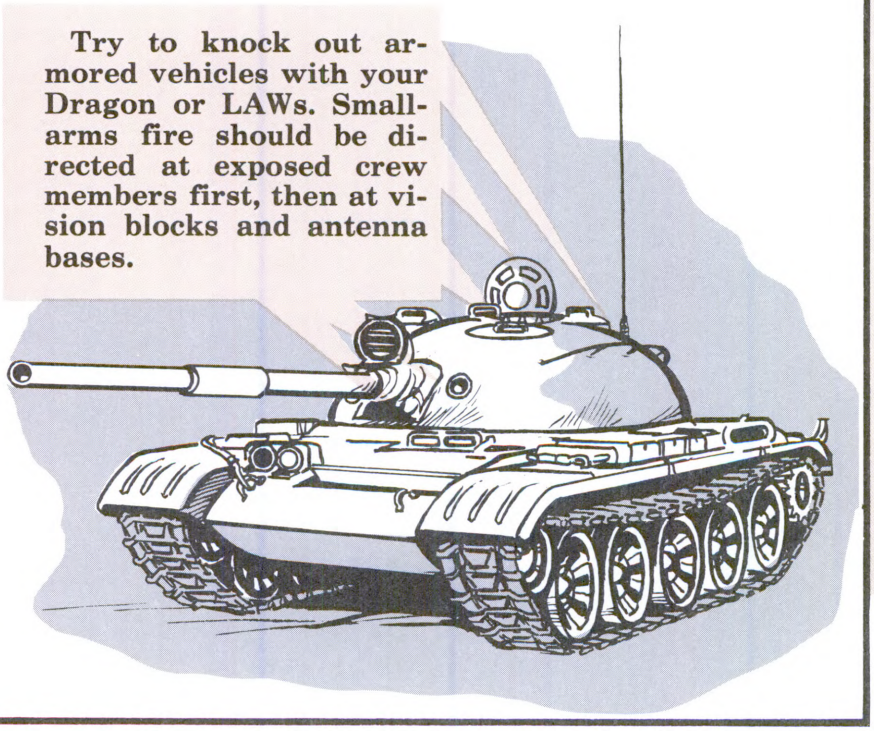
An enemy defending a building will board-up or sand bag windows and doors. He may leave firing ports in these or he may punch firing ports through walls. Shoot into his firing ports. You can see the strike of your bullet against wood, brick, or concrete and can adjust your aiming point.



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ARMORED VEHICLES

Try to knock out armored vehicles with your Dragon or LAWs. Small-arms fire should be directed at exposed crew members first, then at vision blocks and antenna bases.



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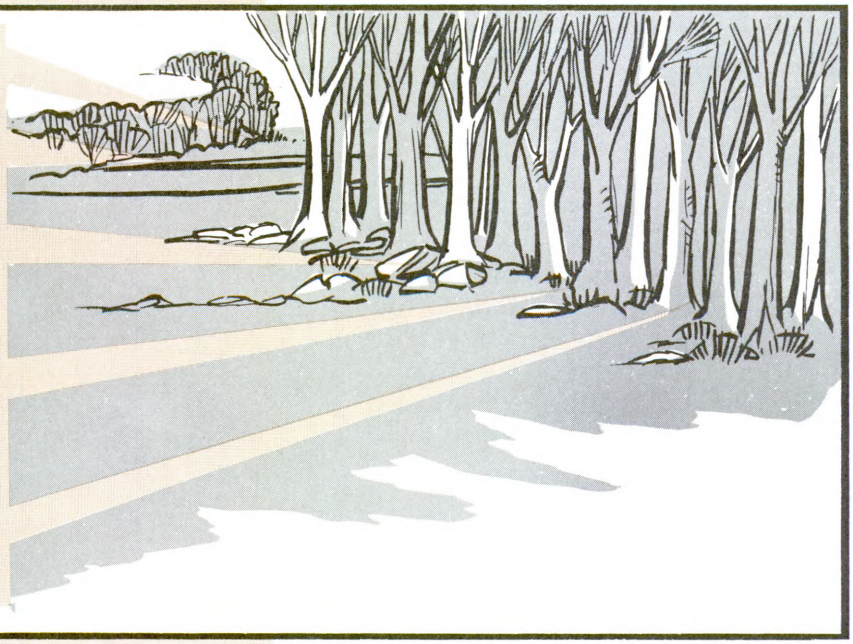
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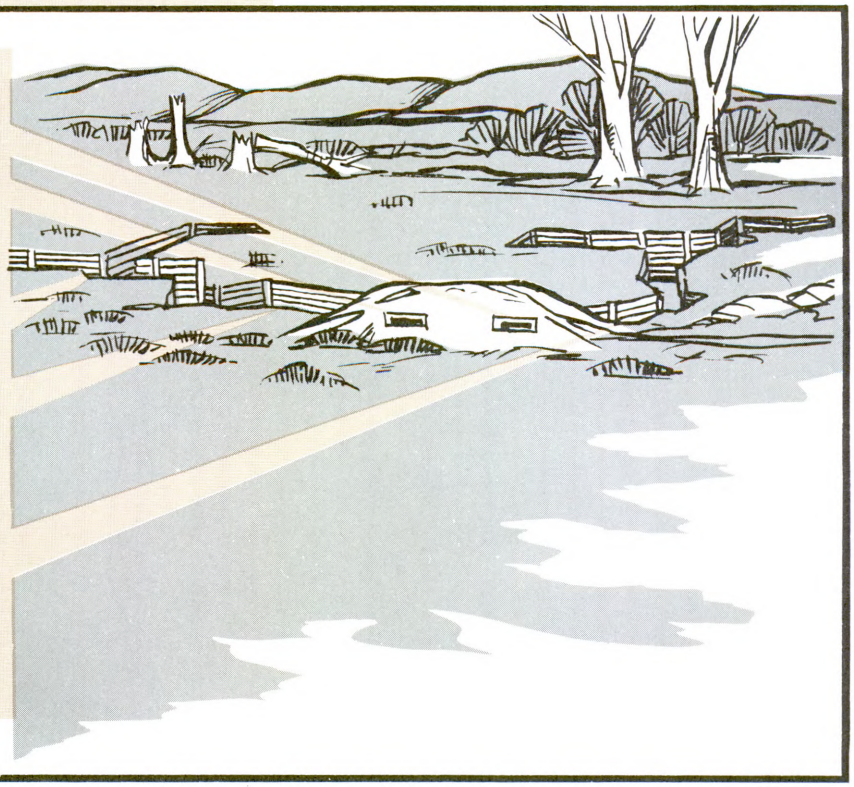
TREELINES OR HEDGEROWS

Look for enemy positions at the base of trees, behind rocks and logs, or just inside a hedgerow. Look for muzzle flashes, dust, smoke, or small openings. Listen for the sound of his firing. If you cannot identify exact positions, shoot at the base of trees, rocks, and logs, or into the openings you have identified. When yu can't tell where your shots are hitting, shoot at the ground just in front of where you want to hit and adjust your aim from that point.



TRENCHES OR DITCHES

Try to spot the firing ports or bunkers that the enemy will have along his trenchline and shoot into them. If you can't see exactly where the enemy is firing from, distribute your fire along the edge of the trenchline. It is easy for the enemy to move from one spot to another unitl you get inside the trench, so expect him to move and be prepared to rapidly shift your fires. As you approach the trench, throw grenades in at the points you plan to enter, immediately after they explode you move into the trench.

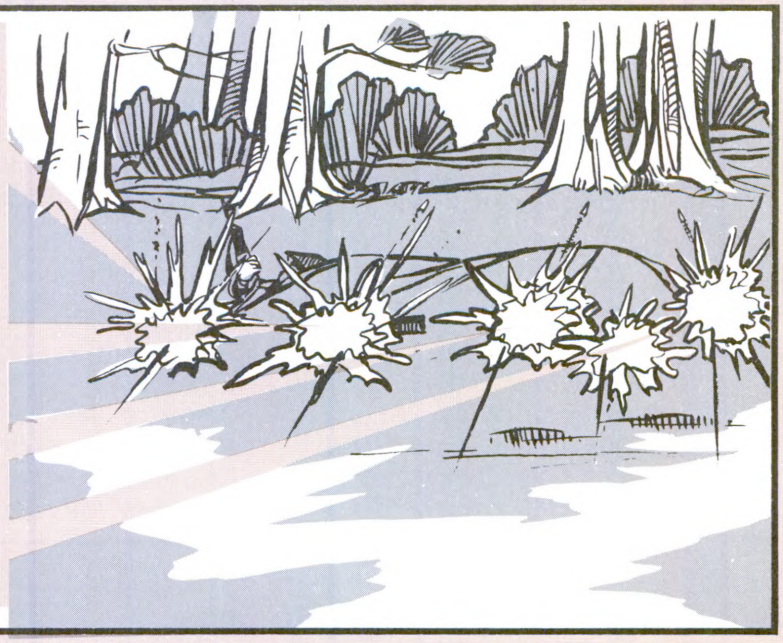


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Squad and platoon leaders must train their men in the techniques of engaging the different types of targets that they may see during the assault.

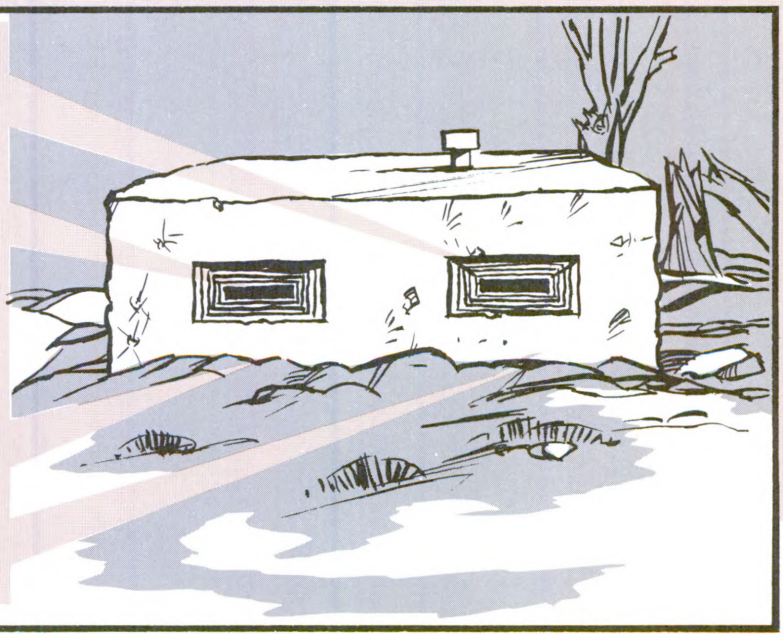
FOXHOLES

Like our own, you can expect to see enemy foxholes with frontal protection. The enemy will try to shoot from around the sides of his frontal cover. Aim your shots at the corners of his cover or against any firing ports you can see. Keep your shots low--close to ground level. Bullets kicking up dirt, cracking through firing ports, or right in front of his face will keep the enemy suppressed so that you can close with and kill him.



BUNKERS

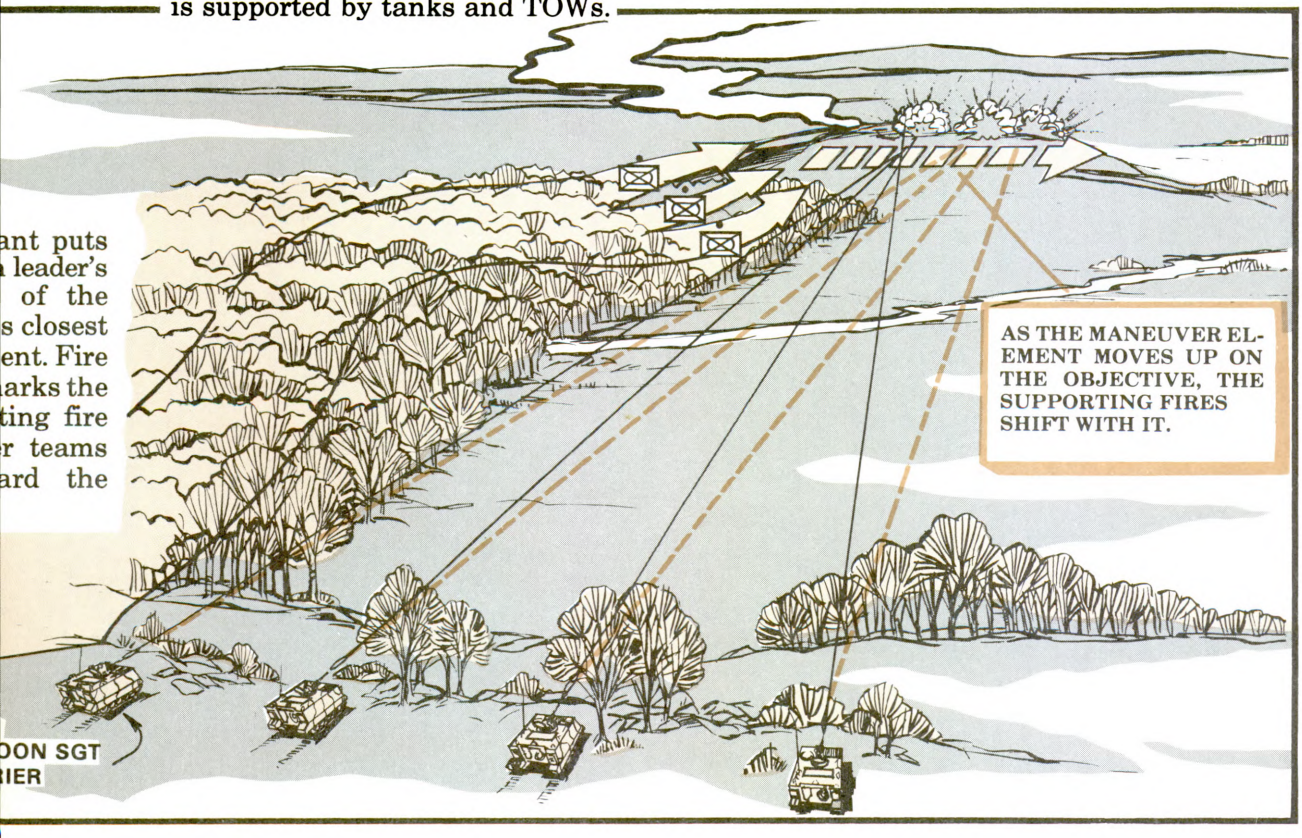
Bunkers have firing ports which can be identified by muzzle flash, smoke, or dust from the weapon firing. Try to shoot into the firing port. If you can't from your location, shoot into the ground right in front of the firing port. This will kick up dust and dirt and spoil the enemy gunner's aim. Shoot into other openings such as vents or entrances to keep the enemy troops from leaving. Before you go into a bunker, throw in a hand grenade. When it explodes, go in firing low.



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Forces providing direct fires for the maneuver element also engage specific targets using the techniques just described. However, positive control of the fire provided by the carrier element is absolutely necessary so that they don't shoot the friendly maneuver element. Within the company team, the team commander will issue specific instructions for controlling supporting fires if the assault involves more than one platoon. But when a platoon is assaulting using its own fire element and maneuver element, the platoon leader controls the fire. Usually, the platoon carrier element will support the maneuver element with fire. The platoon leader goes with the maneuver element and controls the carrier element through the platoon sergeant. Radio is an effective way for the platoon leader to direct the fires of the carrier element because it is immediate, voice communications. However, many times the platoon sergeant and carrier team leaders must use their own good judgement to make their fires as effective as possible. Their fires need to be close to the maneuver element in order to keep the enemy down in his holes and they must be shifted without command as the maneuver element advances.

There are many ways to coordinate the fires of the carrier element with the advance of the maneuver element during the assault. Listed below are two examples. You can use these or you can develop your own. However you decide to do it, remember that the suppression provided by supporting fire is essential to the success of an assault and the technique you use must be simple and effective. The techniques below will also work when the platoon is supported by tanks and TOWs.



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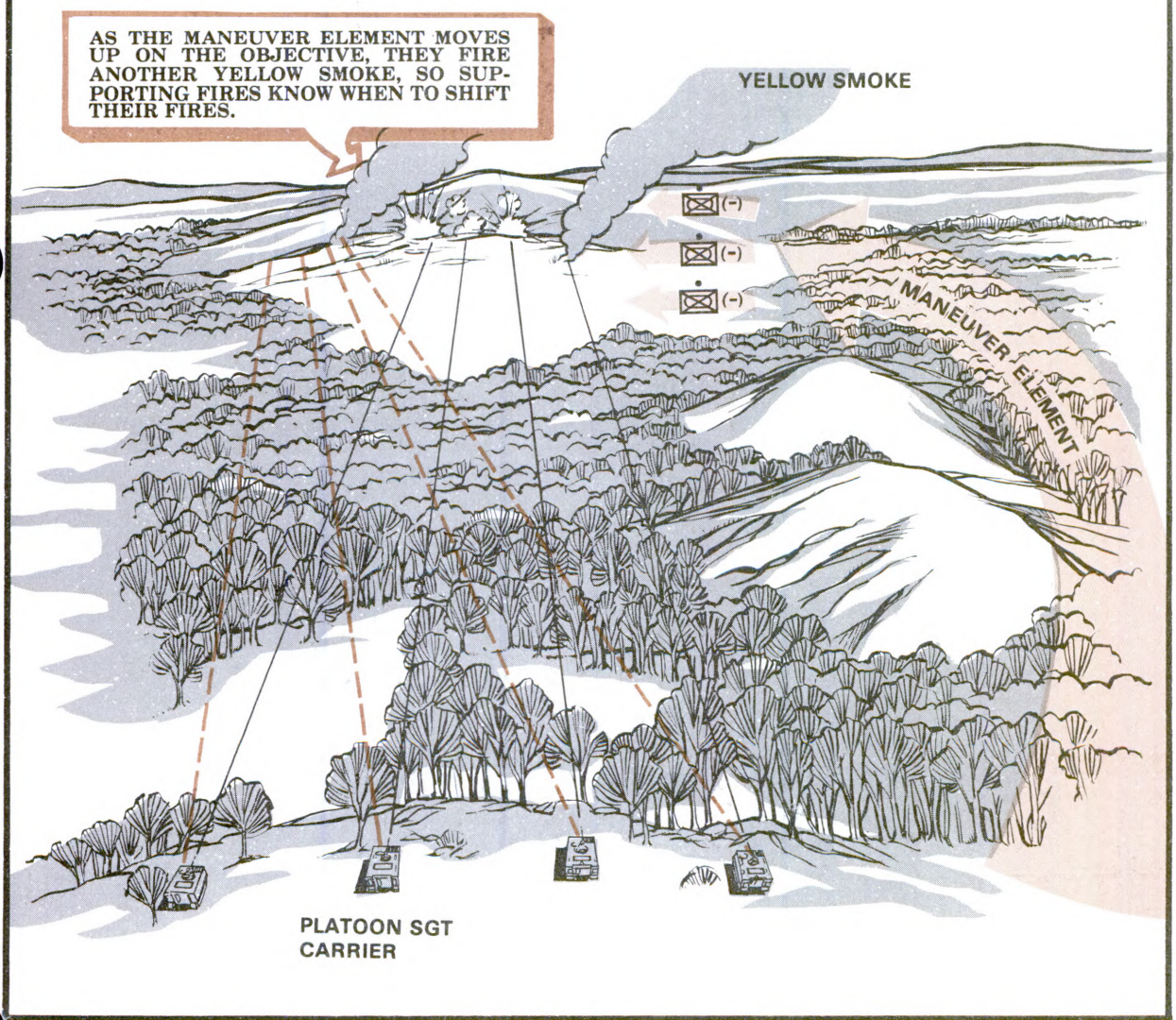
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By radio or prearranged visual signal (e.g., red smoke or star cluster) the platoon leader can tell the platoon sergeant when to shift or the platon sergeant can automatically shift when he sees the maneuver element is getting too close to his fire.

ANOTHER WAY--

The platoon sergeant puts his carrier in the middle of the carrier element so that he can see where the squad carrier teams are going to fire. The platoon leader controls fire by using a colored smoke from a grenade launcher (e.g., yellow). The impact point of the yellow smoke is the near limit of supporting fire and the carrier teams distribute fire toward the other flank.



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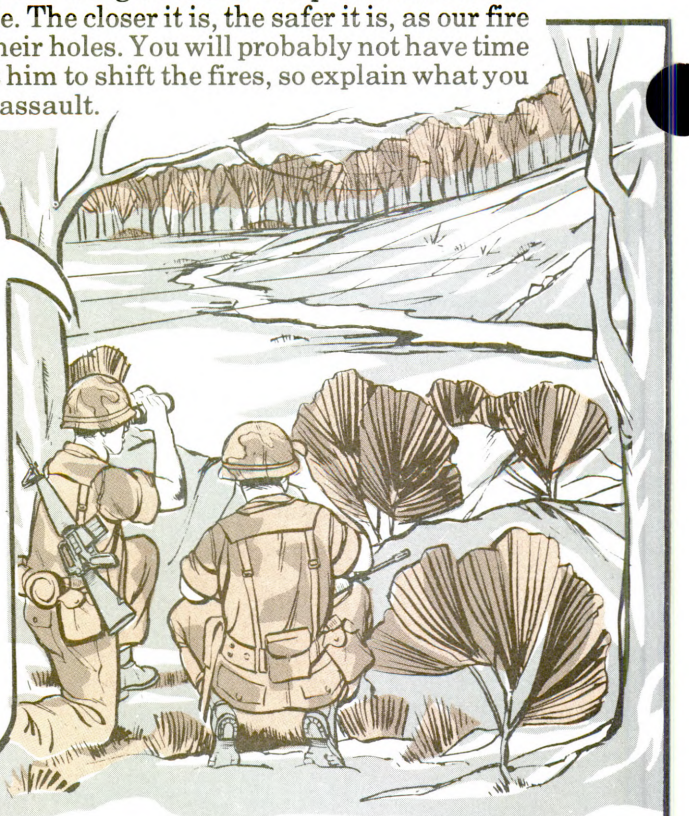
IDENTIFYING SPECIFIC TARGETS FOR THE CARRIER ELEMENT

When the platoon leader wants the carrier element (or tanks or TOWs) to engage a specific target, e.g., a bunker, he must either communicate directly or have a prearranged signal to mark the target. Unless it is being used for some other purpose, a smoke round from a grenade launcher can be used as a prearranged signal. Another way is for the platoon leader to adjust from reference points or landmarks by radio. "From the burning BMP, southeast 100 meters, machinegun bunker."

CONTROLLING INDIRECT FIRES

A forward observer (FO) from the FIST will be with the platoon. The platoon leader controls indirect fires through the FO. The platoon moves as close to supporting fire as possible. The closer it is, the safer it is, as our fire will keep enemy troops down in their holes. You will probably not have time to tell the FO everytime you want him to shift the fires, so explain what you want to do before you begin the assault.

"SGT Chapman, I want you to start the artillery falling on the objective as soon as we cross the stream. As we begin to fire and maneuver up the hill, you keep it just far enough in front so that it won't hit the platoon. If you and I get separated and you see a white star cluster, that means the fires are too close to one of the squads so automatically shift them 200 meters to the east. When I tell you to shift off the objective, put the fires into the wooded draw about 400 meters north of the objective. If I can't talk to you directly, a red star cluster will be the signal to shift off the objective."



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ASSAULT IN A SINGLE RUSH

Under exceptional conditions, the entire maneuver element may have to make the final move into the enemy position or across a short open area in a single rapid rush. Do this only when--

- The platoon is under a heavy concentration of indirect fire and immediate and decisive movement is necessary to prevent its annihilation.
- There is **no** cover and concealment.
- The positions which can bring fire on you are effectively suppressed.

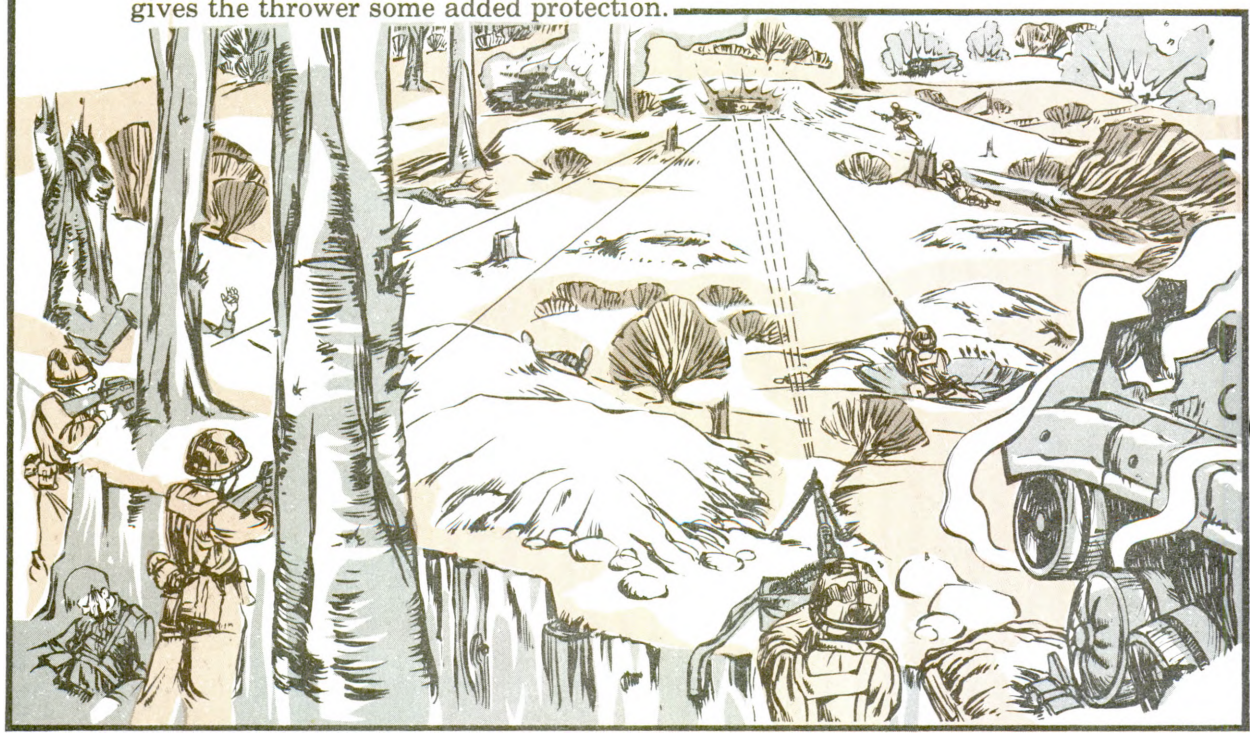
Don't use this technique if there is any other way. If you must, call for maximum fire and smoke from your fire element and have your maneuver element deliver the heaviest possible volume of fire--**you must suppress the enemy on the position before you move.**

For its effect on the enemy, conduct such an assault with fixed bayonets, with all men running, yelling, and firing rapidly at the enemy. Men should fight as buddy teams with one man firing while his buddy reloads. This precludes having everyone reload at the same time.

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CLEARING ENEMY FIGHTING POSITIONS

Enemy fighting positions are cleared by maneuver team or buddy team fire and maneuver. One element fixes the enemy position with fire and the other maneuvers closer to the position to destroy it with grenades, demolitions, or fire. In the picture below, part of a maneuver team fixes an enemy position with fire so the rest of the team can get within hand-grenade range. Increase your fire as the man prepares to throw the grenade; this gives the thrower some added protection.



BUNKERS

If faced with bunkers, a squad should attack one bunker at a time. Large bunkers may require an entire platoon attack.

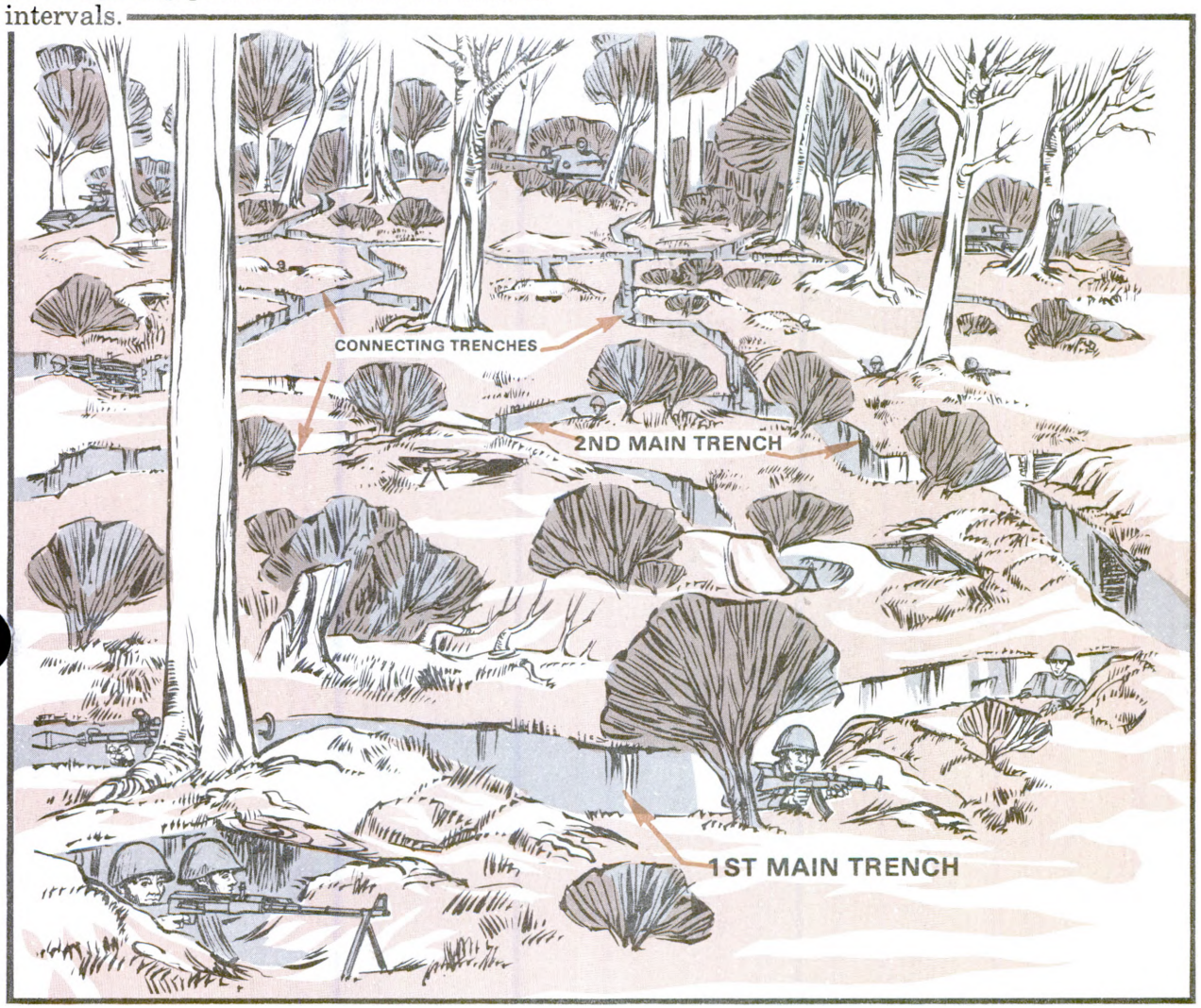
- **Direct part of the squad's fire into the entrance or opening to pin down its occupants.**
- **Approaching the bunker from its blind side, the remaining troops move forward armed with grenades or demolitions to destroy or capture the bunker.**

TRENCH SYSTEM

A trench system usually has two or more main trenches with connecting secondary trenches. Each trench is narrow with frequent turns and curves to keep attackers from shooting down its entire length. It may

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have fighting positions or bunkers built at intervals.



Because one trench supports the other, the enemy can continue to shoot at the attackers, even after the first trench has been secured.

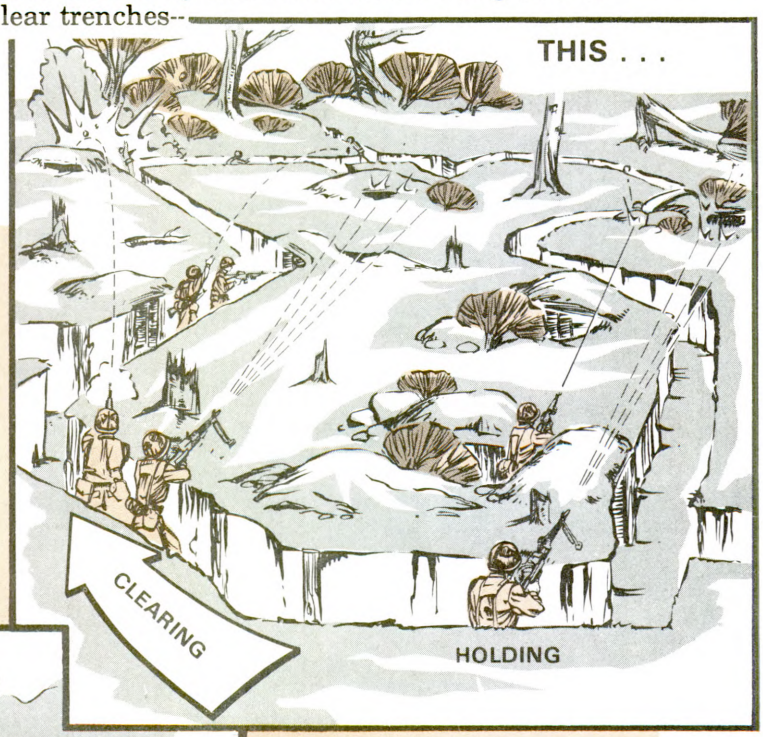
An entire platoon or company may have the mission of clearing a trench.

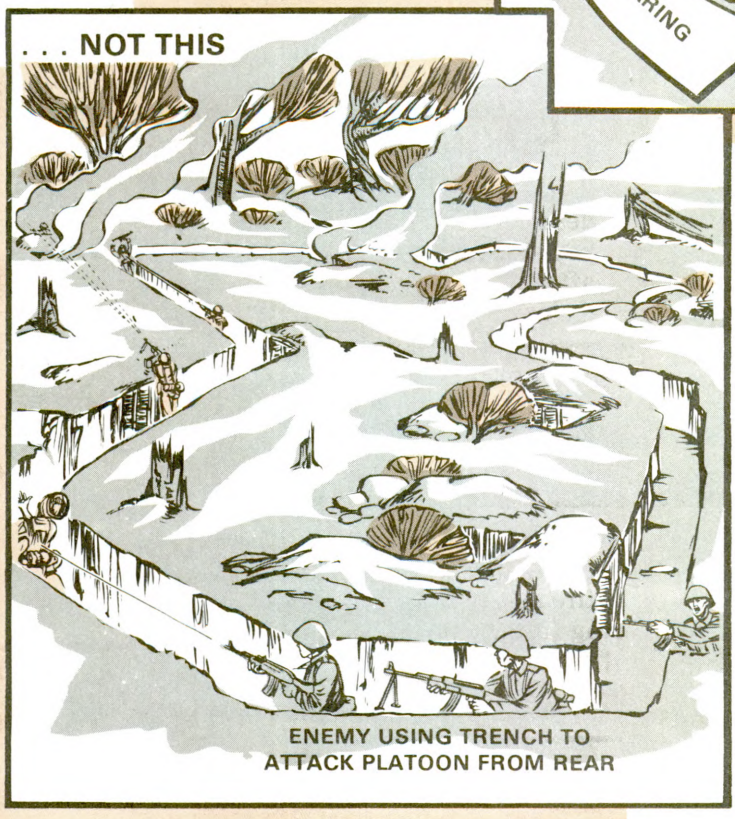
To clear a trench, maneuver teams form two- or three-man buddy teams.

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On entering the trench, one buddy team secures and holds the point of entry, and covers the rear while the trench is cleared. After securing the penetrated point the trench is cleared by maneuver teams using two- or three-man buddy teams. Clear trenches--

- in only one direction at a time by a maneuver team. A platoon can clear in two directions at once if the trench is small enough.
- along the main trench, leaving a buddy team to hold each connecting trench. Don't leave an unsecured trench behind you.
- one small section at a time.





Use these techniques:

- Use the trench as protection from enemy indirect fire and friendly supporting fire. Leave the protection of the trench only if it's the best way to blindside a fighting position.
- Men and teams move, covering each other with fire. Make sure both men in a buddy team don't have to reload at the same time.
- Clear the trench forward (around a corner) or clear a bunker by throwing hand grenades before exposing

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yourselves. When the grenade explodes, come around the corner firing.

- **Maintain an interval between buddy teams to keep two teams from getting caught by the same enemy fire.**

As one buddy team takes casualties, runs out of ammunition, or secures a connecting trench, the next buddy team passes through and continues to clear the trench.

THE USE OF WEAPONS WHEN CLOSING ON THE ENEMY POSITION:

MACHINEGUNS - to destroy and suppress fighting positions or bunkers.

HAND GRENADES - to throw into a trench just prior to entering it, to throw around corners, and to clear enemy positions.

GRENADE LAUNCHERS - to launch grenades into the trench during the assault. Their trajectory makes them especially good for putting fire into trenches in front of the leading team. Remember minimum arming range.

FLAME WEAPONS - to destroy bunker positions and key weapons. Consider the after-burning effects.

LAWs - to destroy fighting positions or bunkers. Check for a clear backblast area before firing them.

DRAGONs - to destroy enemy key weapons and armored vehicles (remember--the minimum range is 65 meters).

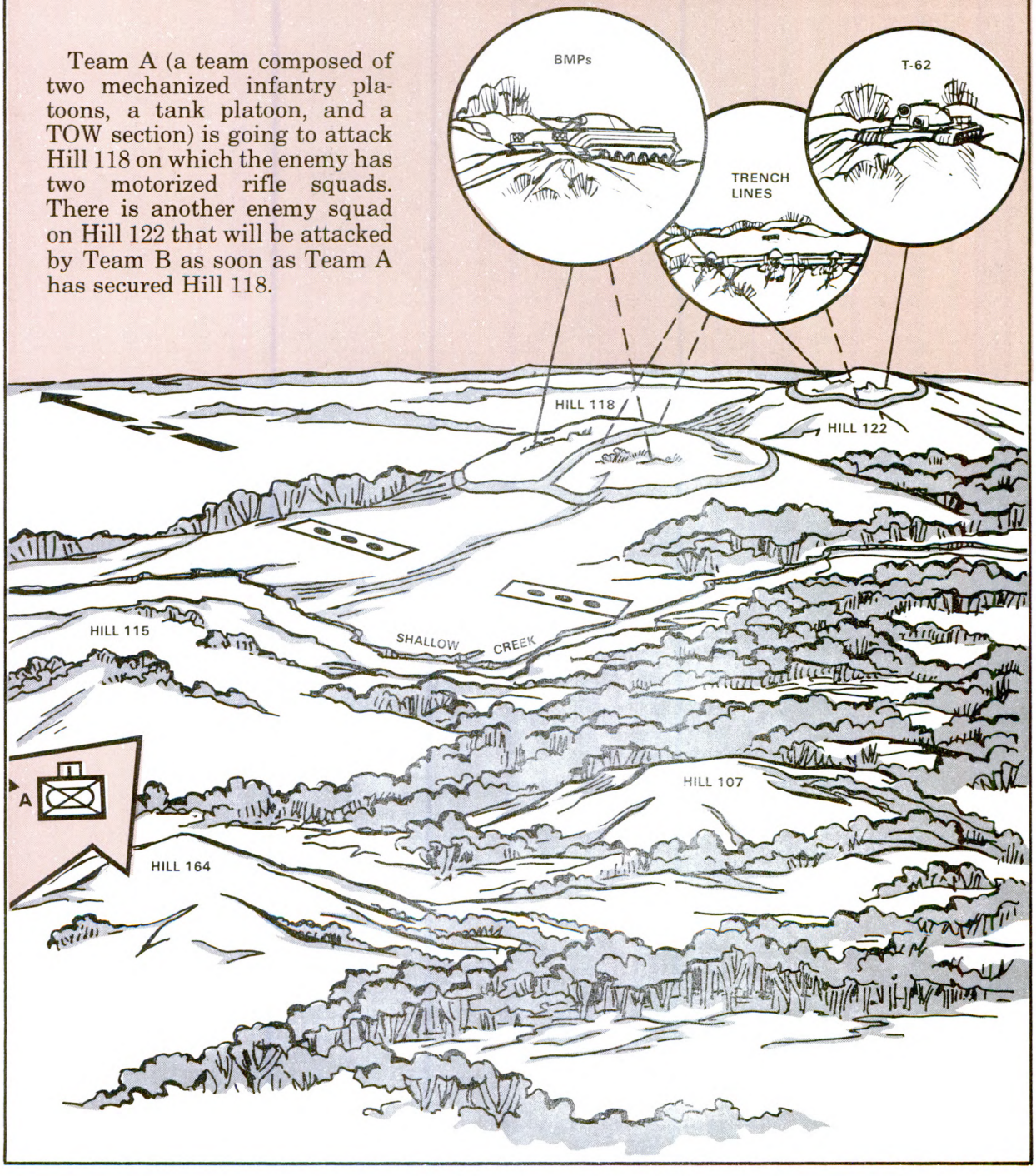
RIFLES - to fire into bunkers before entering (after the grenade goes off).

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EXAMPLE OF AN ATTACK ON AN ENEMY DUG-IN POSITION

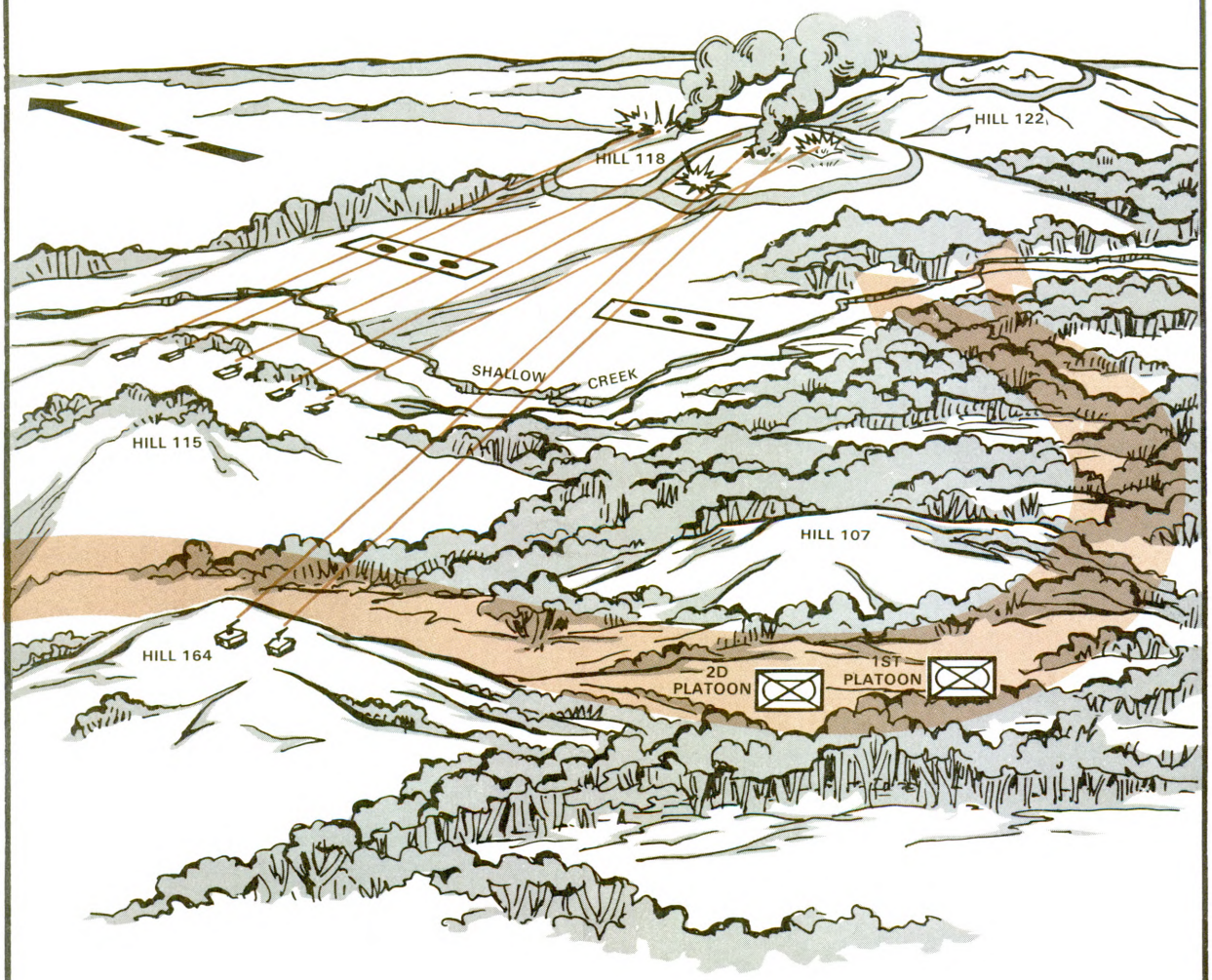
Team A (a team composed of two mechanized infantry platoons, a tank platoon, and a TOW section) is going to attack Hill 118 on which the enemy has two motorized rifle squads. There is another enemy squad on Hill 122 that will be attacked by Team B as soon as Team A has secured Hill 118.



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The woods offer a concealed approach up to the base of Hill 118, but the objective itself has little vegetation and provides excellent fields of fire for defending enemy ATGM gunners. For the attack, the commander decides to support with tanks from Hill 115, with TOWs from Hill 164 and to move to the edge of the woodline with two platoons of mounted infantry. At the last covered and concealed position, the infantry will dismount and, supported by fires from carriers, will conduct the final attack on the enemy position.

From Hill 115 the team commander issues his attack order and shows his platoon leaders how he plans to take Hill 118.

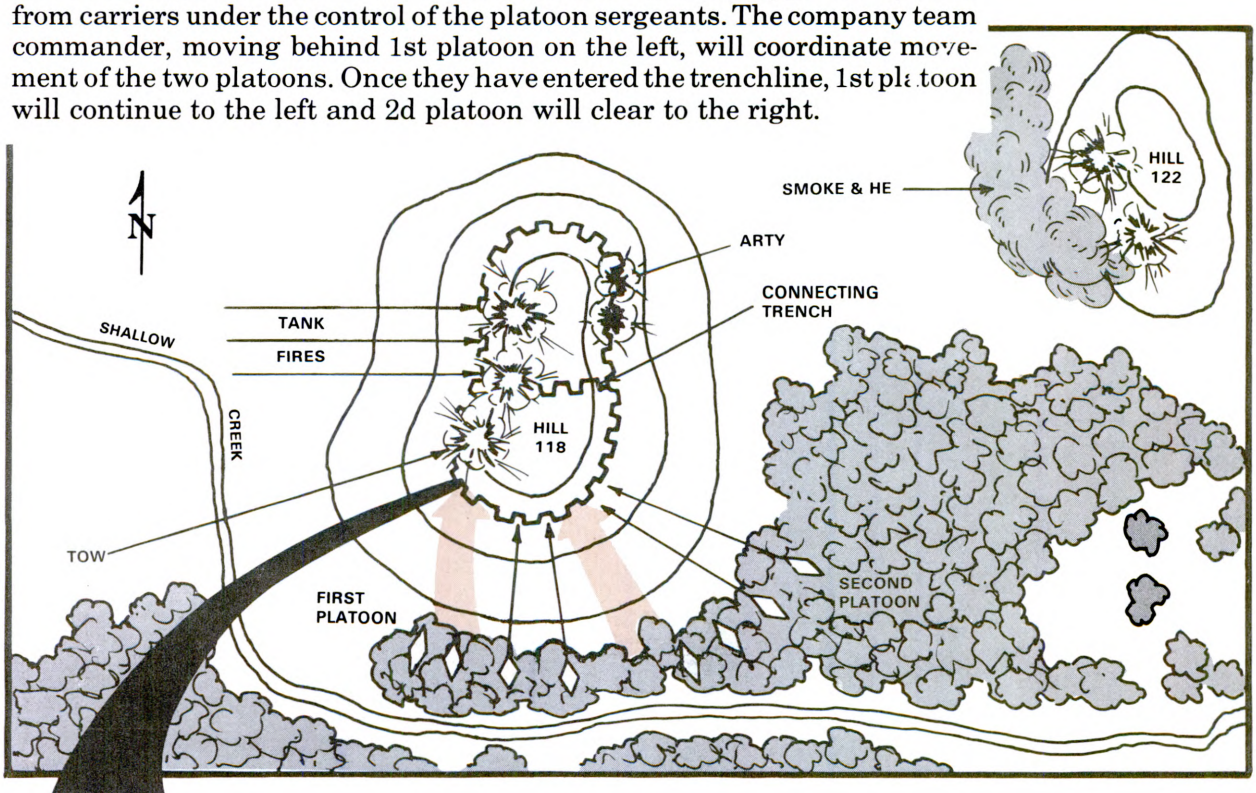


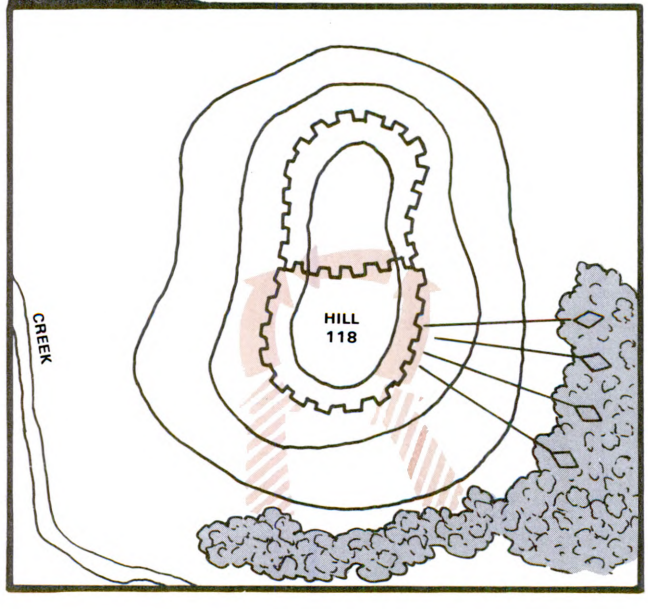
First platoon will lead, followed by the commander, then 2d platoon. At the creed, the 1st platoon will move to the left, 2d platoon to the right. As indirect and tank fires are placed on the objective, troops will dismount and deploy to conduct the final attack.

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Smoke and HE will be fired on Hill 122 to prevent the enemy there from delivering effective fires on the assaulting forces.

First and second platoons will conduct fire and maneuver (See Chap 3) to move from the woodline to the trenchline. Both will be supported by fires from carriers under the control of the platoon sergeants. The company team commander, moving behind 1st platoon on the left, will coordinate movement of the two platoons. Once they have entered the trenchline, 1st platoon will continue to the left and 2d platoon will clear to the right.



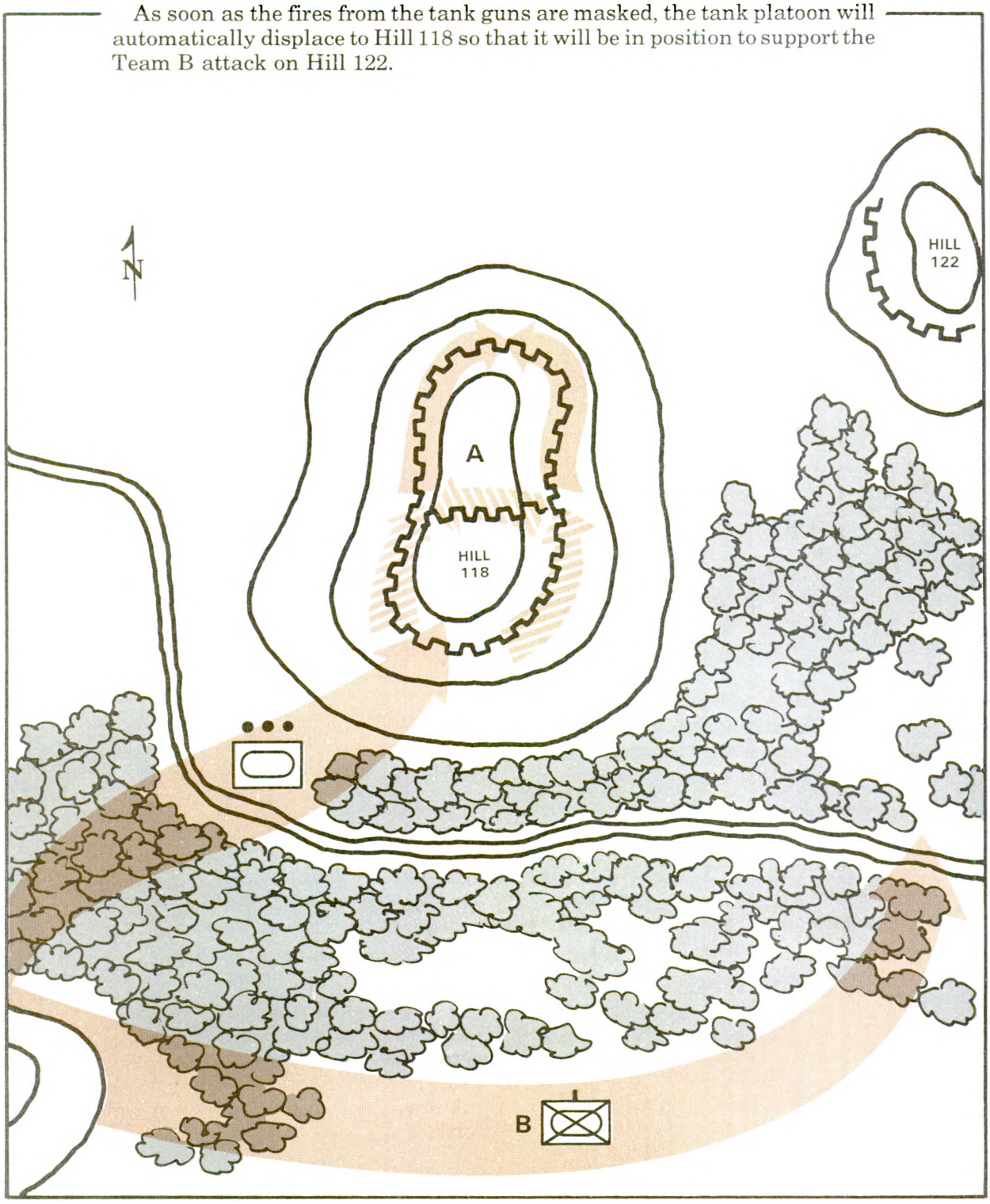


Squad leaders are to designate buddy teams and clear the trenches as described on pages 4-40 and 4-41. The 1st platoon will be clearing the forward portion of the enemy defensive position, where the commander expects the most resistance. Consequently the plan calls for 1st platoon to pause when it reaches the connecting trench and for 2d platoon to clear to the intersection with one element. Second platoon's carriers will shift to provide continuous supporting fires.

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Once contact has been made between the two platoons they will continue clearing to the north until the entire objective is cleared.

As soon as the fires from the tank guns are masked, the tank platoon will automatically displace to Hill 118 so that it will be in position to support the Team B attack on Hill 122.



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Section V.
CONSOLIDATION AND REORGANIZATION

The purpose of consolidation and reorganizing is to be prepared to--

- **repel a counterattack.**
- **continue with the attack.**

The newly won position is held until the team commander orders otherwise. At times, usually with mounted assaults, the platoon(s) will, with little or no hesitation continue the attack--exploiting success. When this occurs, no reorganizing is necessary, and consolidation becomes unnecessary.

CONSOLIDATION

To consolidate:

- **Send forward (and to the flanks) security and recon elements to provide early warning and to learn where the enemy went and what he is doing.**
- **Position men and weapons, as in a hasty defense, on the most defensible ground and cover the most likely approaches; arrange for mutual support and assign sectors of fire; bring carriers forward to positions where they can overwatch, strengthen the position, and be readily available for a continuation of the attack.**
- **Maintain pressure on the withdrawing enemy with continuing indirect fire on his last known or suspected positions, or rally points; plan, or if necessary, shoot suppressive indirect fire.**
- **Dig in as necessary.**

Each squad and key weapon's crew is told to consolidate on a specified terrain feature(s) or in a position related to the clock, e.g., "3d Squad, (right flank squad in the assault)--consolidate from 1400 to 1600. North is 1200."

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REORGANIZATION

Reorganization includes all actions taken to prepare to continue the attack. Reorganization should be SOP or preplanned. In reorganization:

squad leaders--

- **replace fire team leaders and key weapons' gunners.**
- **redistribute ammunition.**
- **move casualties to a covered position, get medical aid to them, and arrange for their evacuation.**
- **report the situation, the position of their squads, the casualties incurred, and the status of ammunition to the platoon leader.**

the platoon leader--

- **informs the team commander of the platoon's status.**
- **requests needed supplies.**
- **sends PWs under guard to the point designated by the team commander.**

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Section VI.
ATTACKS IN BUILT-UP AREAS

Mechanized infantry platoons and squads attack in built-up areas as part of a company or company team. Rarely will a platoon attack a built-up area by itself. It usually takes a platoon to clear one (at the most--two) buildings at a time.

HOW TO CLEAR A BUILDING

The platoon may have the mission to clear specific buildings in a built-up area. Clearing buildings is a time consuming and costly affair. When enemy resistance is found, strive to burn or demolish the building with supporting fire or demolitions rather than clear it room by room.

When clearing a building, the platoon leader designates which maneuver teams will assault and which will support by fire. If the carrier teams have been able to move forward, they support by fire. When it is necessary to blow a hole to allow entry into a building and tanks or engineer CEVs are not available, a breaching element to emplace charges may be designated by the platoon leader.

TO CLEAR A BUILDING, THE PLATOON WILL--

- **isolate the building from other enemy positions using all available supporting fire.**
- **seize a foothold or entry into the building with the maneuver team designated to assault.**
- **clear the building.**

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When told to clear a building, the squad leader organizes his maneuver team into assault and support elements.

THE ASSAULT ELEMENT(S) (USUALLY TWO MEN)--

- **assaults to gain a foothold in the building.**
- **clears the building or parts of a building assigned to the squad.**

THE SUPPORT ELEMENT--

- **provides suppressive fire for the assault team.**
- **consists of the rest of the maneuver team.**
- **secures cleared portions of the objective.**

The support element will normally have one or more designated assault elements formed to replace the initial assault element if it runs out of ammunition or takes casualties.

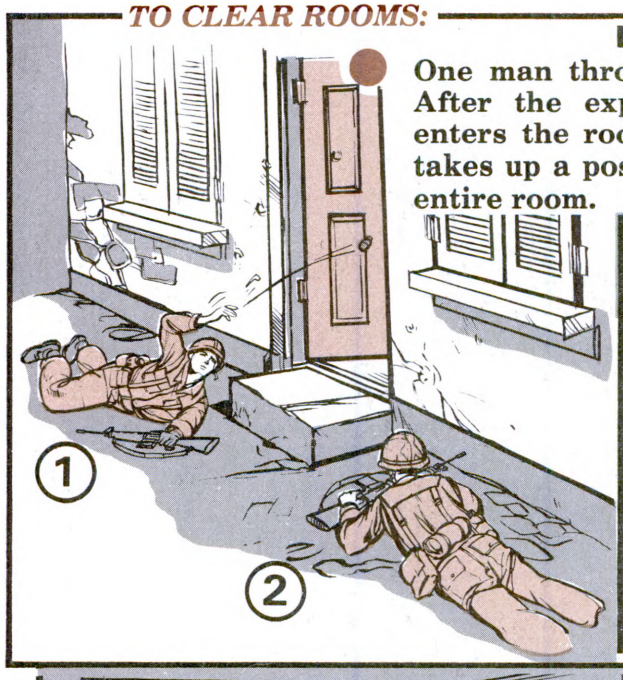
TO ENTER A BUILDING:

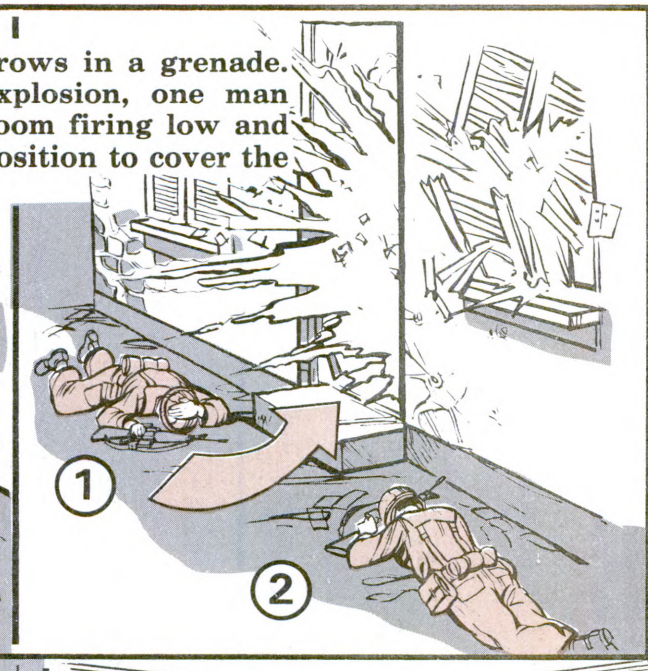
- **Enter at the highest point possible. Ladders, drain pipes, vines, grappling hooks, or APCs may be used, or movement may be from roof to roof when buildings are close together. Often however, supporting fire from other areas will make this difficult to do as men climbing up the sides of buildings are vulnerable to enemy fire.**
- **Do not enter by doors or windows unless you can destroy any mines and kill enemy infantry protecting these entrances.**
- **When enemy fire prevents entry at high level, create a new entrance with tanks, APCs, or demolitions.**

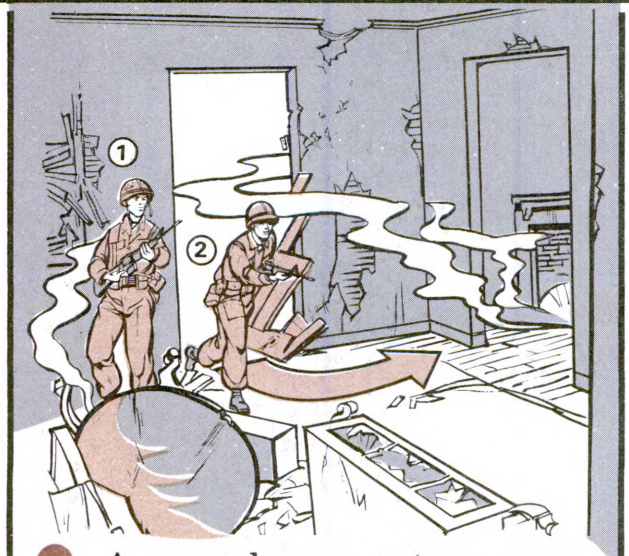
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TO CLEAR ROOMS:

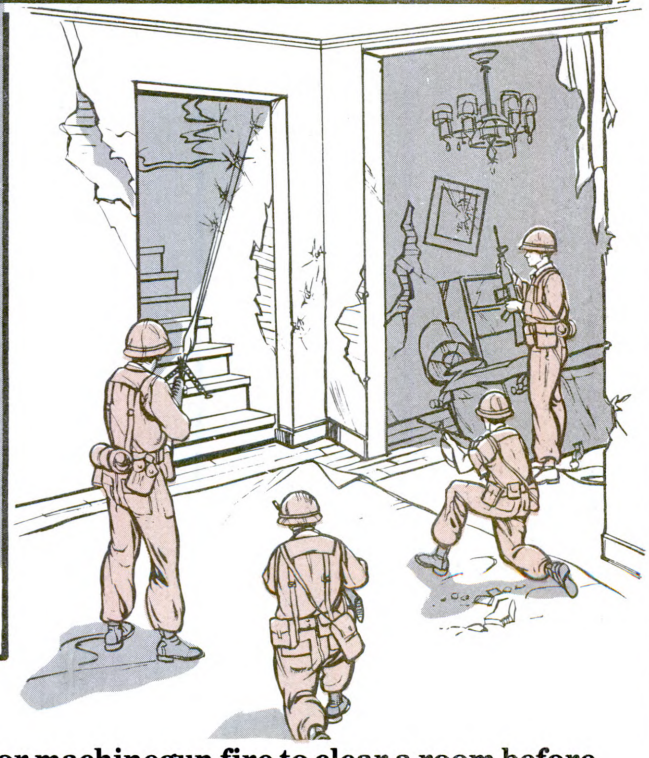
One man throws in a grenade. After the explosion, one man enters the room firing low and takes up a position to cover the entire room.







A second man enters, overwatched by the first man, to search the room.



When practical, use rifle or machinegun fire to clear a room before entry. Fire through doors or walls and through the floor or ceiling. M60 machineguns are much better than rifles for this.

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APCs AND TANKS IN BUILT-UP AREAS

Carrier teams and tanks usually overwatch the maneuver elements. Cal .50 machineguns are very effective suppressing enemy positions in buildings.

Machinegun fire down streets helps clear them before you move down them.

When moving in towns, the APCs should hug the side of the street to minimize their exposure to enemy antitank weapons. Riflemen in or moving with carriers or with tanks must watch for enemy RPG teams and enemy in upper stories and on rooftops trying to throw hand grenades down open hatches.



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POINTS TO REMEMBER

- **Streets and alleys are a defender's kill zones and must be used with caution.**

- **Rubble caused by artillery fire or airstrikes slows the advance of the attacker but also provides good cover and concealment for both attacker and defender.**

- **It is difficult to locate hostile weapons. Buildings cause sounds to be magnified and echoed along streets. Dust and smoke from projectiles and incendiaries reduce visibility.**

- **Defender and attacker are close to each other. Normally close support is greatly reduced because of restrictions posed by tall buildings, thick walls, and fences.**

- **Built-up areas are ideal for the use of boobytraps. Steps to avoid them or lessen their effect are:**

  - ***Mark entrances into buildings and rooms already cleared with chalk, engineer tape, or in some other way. Teams should use these entrances, as they are known to be clear.***

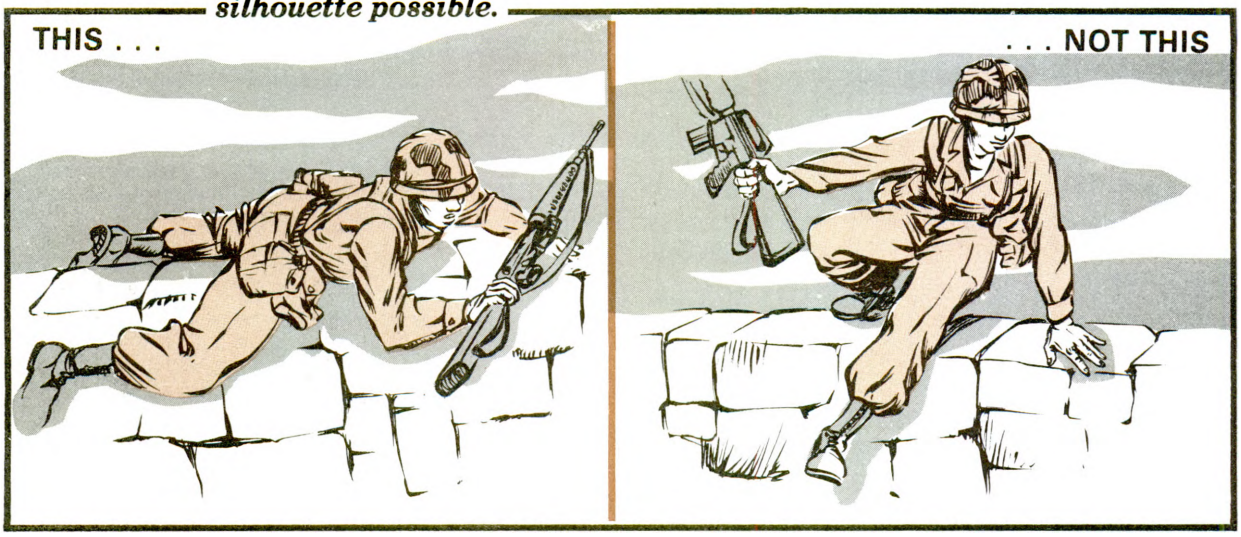
  - ***If you must use stairs, take two or three steps at a time.***

- **One situation may call for speed and aggressiveness, while another may require stealth. Techniques for proper movement are:**

  - ***When moving along streets and alleys, select cover in advance. Hug walls and move from cover to cover, avoid moving in front of doors and windows. Above all, do not bunch up.***

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- ***Roll over walls quickly, presenting the lowest silhouette possible.***



- ***When crossing a street, move directly rather than diagonally. To limit exposure time, squads cross all at once, in one rush.***

WHEN USING GRENADES:

- ***Do not throw grenades up stairs.***
- ***Make sure lever pops off, then count "one thousand, two thousand," before throwing the hand grenade.***
- ***Throw each grenade into a room vigorously. This will make it ricochet before exploding and deny the enemy the opportunity to throw it back.***

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Section VII. NIGHT/LIMITED VISIBILITY OPERATIONS

As part of a larger force, platoons often take part in offensive operations at night and during other periods of limited visibility to--

- **achieve surprise.**
- **exploit success.**
- **rupture strong enemy defenses.**
- **minimize effectiveness of enemy AT fire.**
- **move to a more favorable position.**
- **disrupt enemy defensive system by infiltrating to his rear.**

Note that this section is entitled Night/Limited Visibility Operations and not simply Night Operations. This is because darkness is just one condition that reduces your ability to see. Smoke, fog, dust, and heavy rain or snow are different conditions which create different problems.

By itself, darkness can usually be overcome. Night vision devices make navigation and control of movement possible. Night sights or devices are available for most of our infantry weapons and we can illuminate the battlefield in a variety of ways at night. However, when visibility is limited by weather, dust, or smoke, the effectiveness of our current vision devices/sights and of illumination is drastically reduced.

The effects of darkness/limited visibility on tactical operations and the techniques and equipment for overcoming them are discussed in Appendix E, Limited Visibility Equipment and Techniques. The rest of this section discusses the types of operations that can take place under these conditions and how they are conducted.

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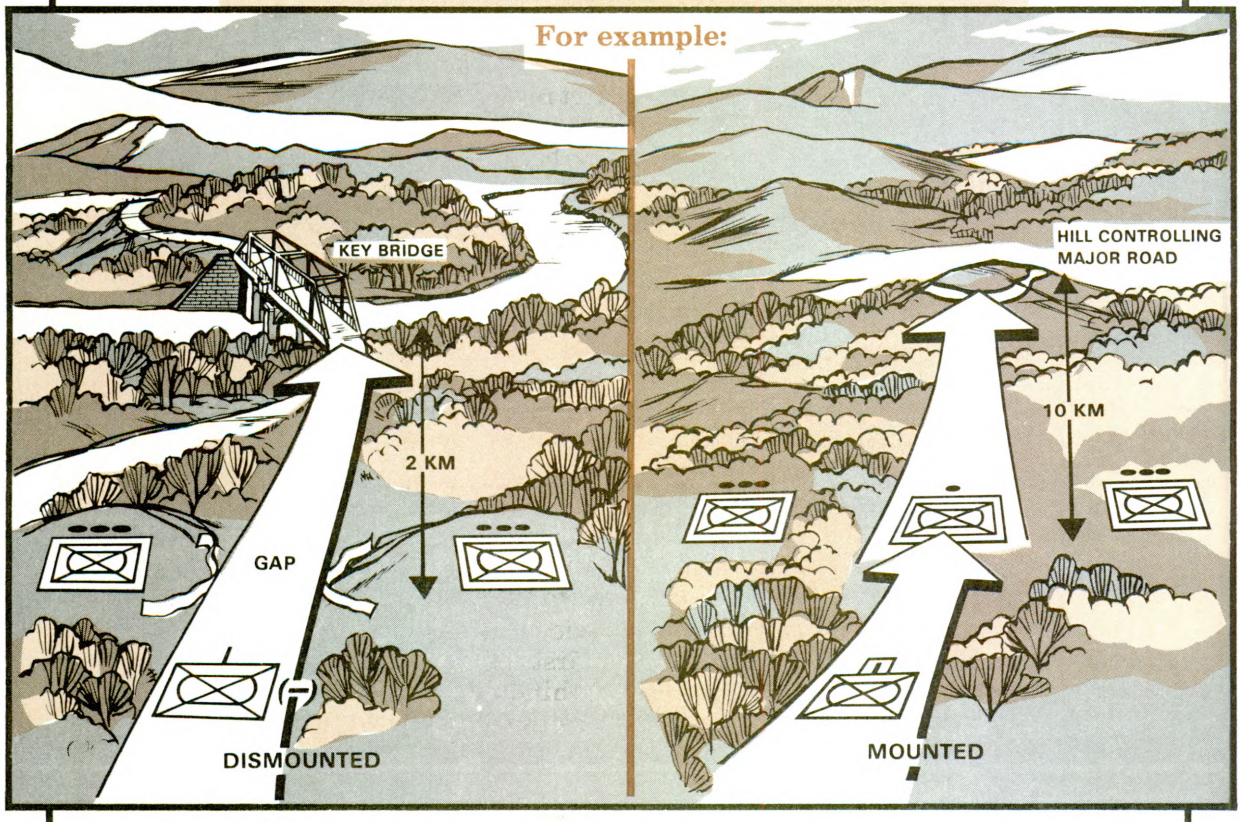
BYPASS

When a battalion, brigade, or division commander wants to move a unit behind enemy forward positions to an important objective, he may decide to exploit the concealment offered by darkness/limited visibility and bypass the enemy. This bypass may be conducted mounted or dismounted.

The platoon moves as part of the company team (mounted bypass) or the company (dismounted bypass). Bypass can be conducted during all conditions of visibility.

The company/company team either--

- finds a gap between enemy positions and moves through
- finds a lightly defended spot in the enemy defensive belt, quickly overwhelms it, and then moves through.



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Normal movement techniques can only be used if light levels are high enough to allow control with passive night vision devices. Active night vision devices such as blackout driving lights and infrared lights are too easy for the enemy to detect. Since you are behind his lines, you cannot afford the risk. Therefore, when light levels are low (dark night, in woods) or in heavy fog, rain, smoke, dust, or snow, you will have to be close to the vehicle/person in front of you or control will be lost. Careful use of flares to aid image intensification devices can help, but your commander will tell you when and how to use them.

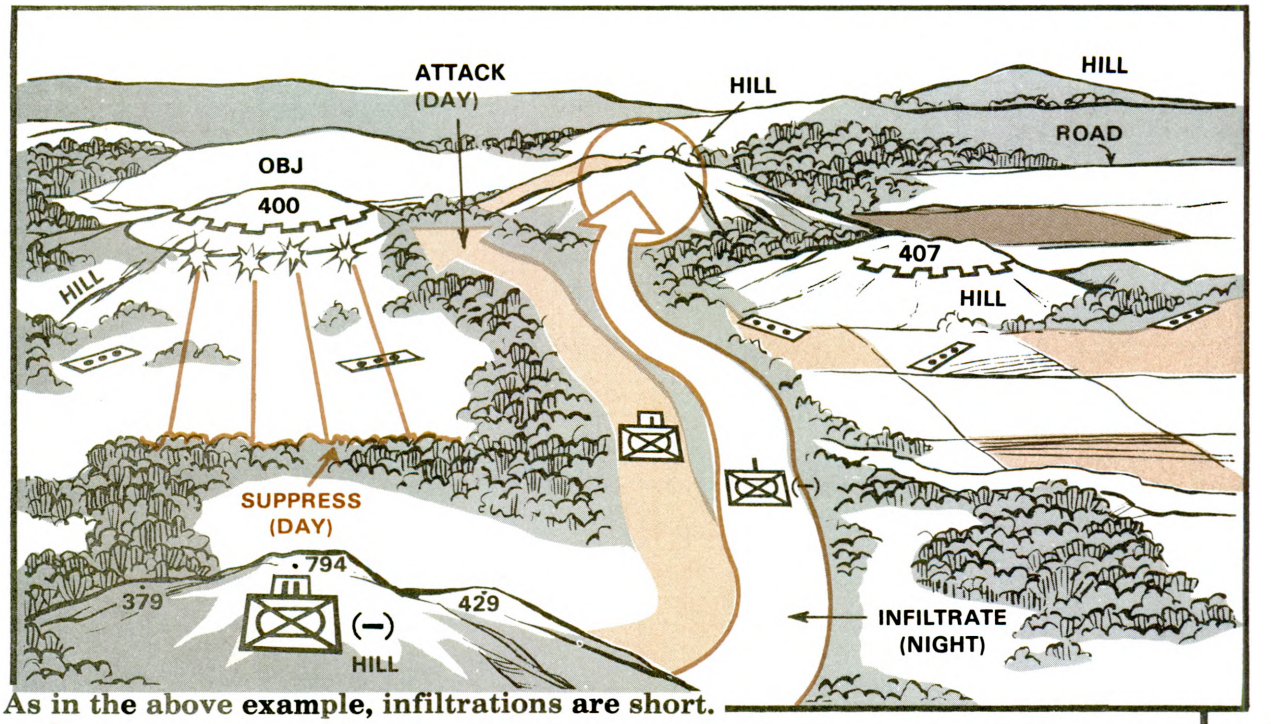
When conducting this operation with a company team, tanks lead whenever possible. However, you can expect to dismount often and lead the tanks. Your carrier teams follow tanks. If visibility is very poor, the tanks will halt while you move forward to clear or find a way through. Since you may have to guide the tanks through very restricted terrain, carry paddles covered with luminous tape or paint on one side.

Your team commander will select routes of advance which ease control and navigation. Cover, concealment, and terrain driving are still required because of the enemy's night vision capability. Units guide on ridgelines, roads, railroads, creeks, and other identifiable natural or manmade features. On chance encounters with the enemy, the usual tactic is to bypass. Get direct and indirect fire on the enemy, and seek a route around him.

INFILTRATION

Infiltration is movement by stealth (on foot) around or through enemy positions. The purpose of an infiltration is to put a force in a position behind the enemy so that it can accomplish some other mission. For example, a battalion/task force plans to attack at first light. Its commander orders your company to infiltrate to a position behind the enemy so that when the attack begins your company can suppress the enemy's ATGMs.

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As in the above example, infiltrations are short.

Platoons move dismounted as a part of a company or larger force around or between enemy positions to reach an objective. The unit moves with stealth so as to avoid contact. Ideally, the objective will be void of enemy--if not, the unit usually awaits the arrival of better visibility to reconnoiter and then assault its objective.

Infiltrations can be conducted under any condition of visibility. Generally, the more visibility is reduced, the greater the chance that the infiltrating unit can move undetected.

METHODS OF INFILTRATING

There are two ways for a unit to infiltrate:

- It may move in small groups at intervals along one route

OR

- It may move in small groups on multiple routes.

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In general, the use of one or a few routes is the simpler method of infiltration. Control is enhanced because one route requires less navigational ability and reassembly of the unit is easier. Use of multiple routes is usually the faster method and avoids compromise of the entire force. Usually companies use a single route. A platoon normally moves as a single unit.

An infiltration operation is preceded by a gathering of all available intelligence from aerial photos, maps, intelligence reports and reconnaissance patrolling to locate--

- enemy security elements.
- routes.
- gaps and passage points.
- enemy defenses on the objective.
- possible assembly areas and rally points.

Platoon and squad leaders are, when possible, brought to a position from which they can see the objective or as much of the area they will traverse as possible. Be careful when reconnoitering, don't give away your operation.

For an infiltration, select routes which--

avoid enemy positions. The enemy's defense may have gaps of up to 2,000 meters between companies, up to 500 meters between platoons, and up to 100 meters between squads. He will try to cover such gaps with obstacles and Ops/LPs, but their size and number may make coverage difficult.

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have cover and concealment. Dismounted movement can be detected by enemy night vision devices, so cover and concealment are a must. If you move through very dark locations (e.g., thick woods) with limited visibility, the light level will be low and night vision devices will be less effective, making it harder for the enemy to see you.

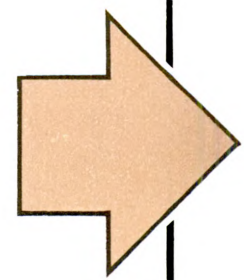
ease control and navigation. Because infiltration is conducted in difficult terrain and usually with limited visibility, you should follow fairly identifiable terrain feature. This does not mean open, easily trafficable areas; the use of such areas can be fatal. Instead, use ridge lines, gullies, rivers, and streams to guide dismounted movement and still provide cover and concealment.

provide protection from a mounted attack. As in any dismounted operation, infantry moves on terrain which protects it from a mounted armored attack. Restricted terrain offers even more protection from mounted attack at night or when visibility is limited than in daylight because of the limitations these conditions impose on driving armored vehicles.

The platoon leader or company commander may choose rally points along the route. Rally points are areas at which a unit will reassemble if control breaks down enroute. Normally, several such locations are designated along the route/zone of infiltration to be used on order, if needed. Rally points should be easy to find and should provide cover, concealment, and protection from mounted attack. Objective rally points are also selected.

An objective rally point (ORP) is near the objective where the infiltrating unit reassembles. An ORP should--

- **have cover and concealment.**
- **be easy to find.**
- **be large enough to allow full deployment.**
- **be secured prior to occupation.**



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- be as close as possible to the unit's objective without compromising security.
- facilitate reconnaissance and occupation of the objective.
- be known by every member of the unit.

ATTACK OF AN OCCUPIED OBJECTIVE

An attack of an occupied objective during limited visibility is one of the most difficult military operations to successfully conduct. Commanders of your higher headquarters recognize this, and would prefer to order a limited visibility bypass or infiltration which would serve to assist an attack when visibility improves. However, there will be times when strong defensive positions must be taken--and the commander feels that the chances of your success are increased by limited visibility.

Because of the control problems experienced by company, platoon and squad leaders during such attacks, they will normally be deliberate. That is:

- Time will be available for detailed planning and preparation.
- Leaders down to squad level will have a chance to see their routes and objectives during good visibility.
- Distances from the line of departure to the objective will be short.
- The enemy locations and dispositions will be known in great detail.

Attacks will take on different characteristics depending on whether the visibility limitation is darkness or another condition. Generally, the major difference is in the use of overwatching fires. An overwatch element can be effectively used during darkness by employing illumination and night vision devices; during fog or heavy rain or snow, it is not effective.

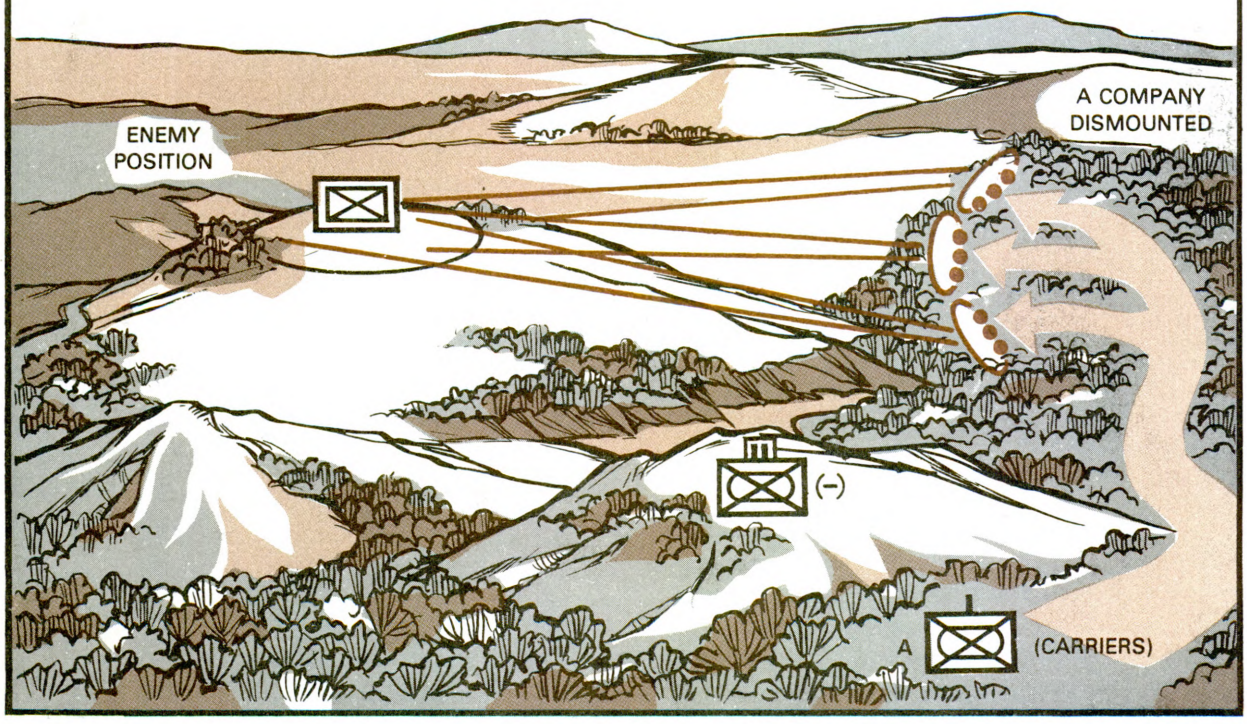
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ATTACK USING OVER-WATCHING FIRES

In most situations, the battalion and company commanders attempt to support limited visibility attacks with direct and indirect fires when night vision devices and/or illumination will be effective. Deliberate attacks under this condition will normally be dismounted. They may be mounted if illumination will be good enough to allow assaulting tanks and mounted infantry to maintain positive control of fires and movement. In either case, extensive illumination is planned and used for the assault and clearing of the objective. Coordination between maneuver and overwatching elements can be by radio or prearranged pyrotechnic signals.

The assaulting force attempts to get as close as possible to the objective during daylight. Ideally, it gets close enough so that the only movement after dark will be the actual assault.

In the following example it is late in the afternoon and Company A has moved dismounted through heavy woods close to an enemy position. It was stopped because the last 300 meters offered almost no cover and concealment, enemy fire was heavy, and the TF commander felt that to assault across the open area would cause excessively high casualties. The battalion task force commander told Company A to deploy along the woodline, continue firing at the enemy, and prepare to assault as soon as it gets dark. Tanks, TOWs, and the other mech company will support with direct fire, artillery will fire a two minute preparation just before the assault and mortars will fire illumination on call.



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The commander of Company A shows each platoon leader exactly which part of the objective each platoon will take once the assault begins. Moving from squad leader to squad leader, platoon leaders show each one which portion of the platoon objective they will take, when, and how the platoon will assault. Company A carriers are waiting in a hide position behind the overwatch force and will move up once the objective is secured.

As soon as the two minute artillery preparation is fired, the company assaults covered by heavy direct fires from the task force. The artillery will shift north of the objective since the assaulting troops would be too close to the 155mm fires if the rounds continue to impact on the objective. However, the smoke and dust created by the initial artillery fire, plus the continuing direct fire, should provide suppression needed to get Company A across the open area. Although the company commander is controlling the supporting fires, each platoon leader is told that if they get too close, a red star cluster will cause them to automatically shift 75 meters to the west. Illumination will not be fired until the company has closed to within 50 meters of the enemy positions.

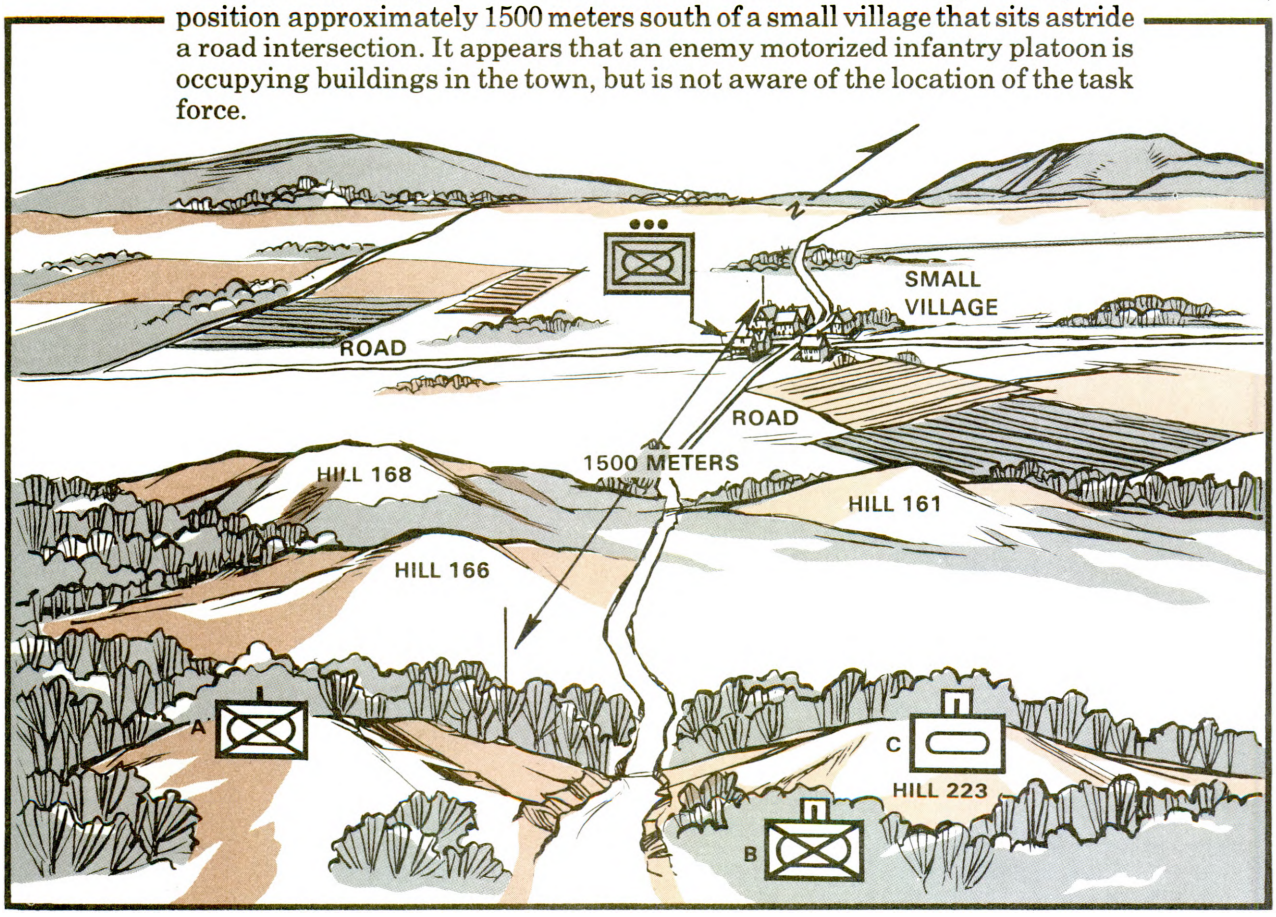
Each squad is told to move rapidly and boldly straight to its assigned objective, clear it, and hold it until told to move by the platoon leader. The company commander felt that was the simplest way to control the assault.

SURPRISE ATTACK

There will be times when the company or battalion task force commander believes that the best way to attack an occupied objective during limited visibility is to move as close to the enemy using stealth and then assault without shooting any advance suppressive fires. Depending on visibility conditions and the availability of good overwatch positions, suppression may be fired once the actual assault begins. If visibility will allow it to be effective, illumination is normally fired once the assaulting force has closed with the enemy.

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In this example, the task force has moved forward during the day to a position approximately 1500 meters south of a small village that sits astride a road intersection. It appears that an enemy motorized infantry platoon is occupying buildings in the town, but is not aware of the location of the task force.

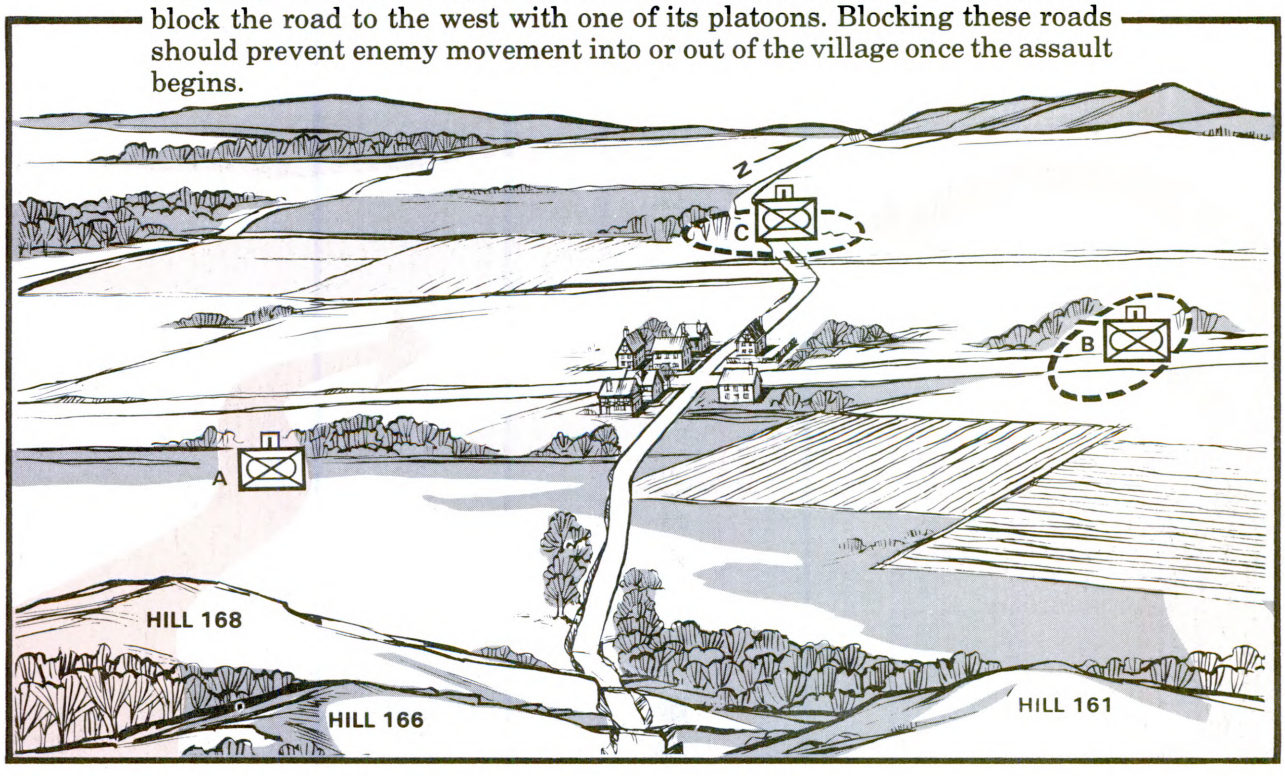


The area between the task force's present location and the village is completely open except for three small hills. Rather than attempt to assault mounted across the open area, the TF commander decides to wait until after dark and try to surprise the enemy in the village. The commander knows that for the last few nights heavy fog has settled in at about 1930 hours. His S2 tells him that should happen again tonight. Although this will not allow him to use direct supporting fires and will greatly reduce the effectiveness of illumination, it should allow his assault force to get close to the village without being detected.

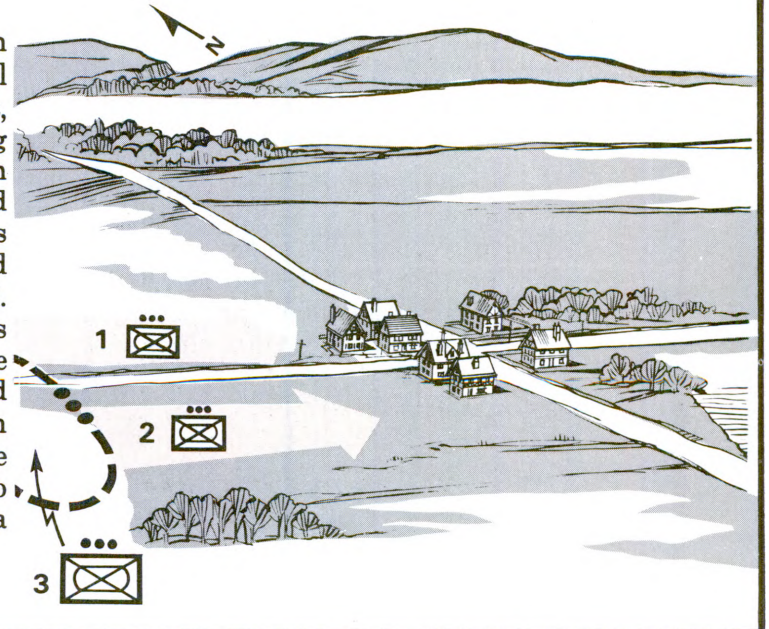
His plan is to have Company A move dismounted around the west side of Hill 168 at 2000 hours and assault the village. He plans to have his tank heavy team (Team C) move around the east side of the village and block the road to the north. Team C will not move until Company A has engaged the enemy in the village.

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Team B will follow Team C and block the road to the east. Company A will block the road to the west with one of its platoons. Blocking these roads should prevent enemy movement into or out of the village once the assault begins.

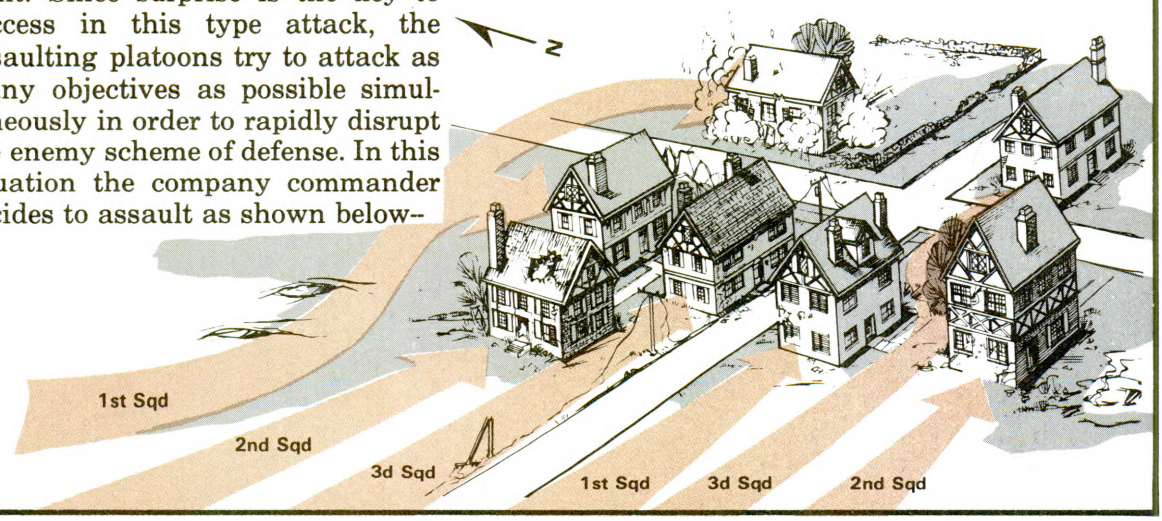


The commander of Company A, in order to insure he can retain control during his movement and assault, takes his platoon leaders during daylight to positions on Hill 223 from which he can point out the route and exact platoon objectives. His plan is to move in column until the lead platoon crosses the east-west road. When the lead (1st) platoon crosses the road and the 2d platoon gets to the road, they will turn to the right and assault into the village. Each platoon clears all buildings on their side of the road. The 3d platoon continues to move up the road and takes up a position to block to the west.



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From Hill 223 each squad leader is also shown the route and exactly which building his squad will assault. Since surprise is the key to success in this type attack, the assaulting platoons try to attack as many objectives as possible simultaneously in order to rapidly disrupt the enemy scheme of defense. In this situation the company commander decides to assault as shown below--



Within 1st and 2d platoon, squad leaders ogranize assault and support elements (see P. 4-61) in order to clear the buildings.

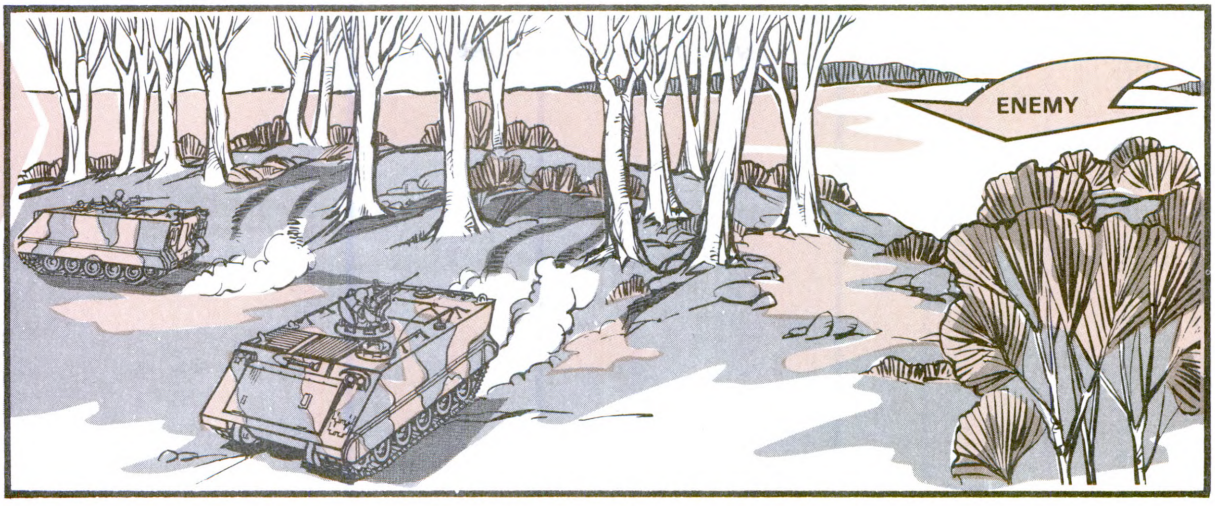
In order to assault all buildings simultaneously, the 1st platoon leader tells his 1st squad that it must attack two buildings. The 1st squad leader organizes his men so that he has two assault and two support elements.

This type of attack will only succeed if the plan at all levels is simple and well-understood by everyone.

EXPLOITATION AND PURSUIT

When a larger force of which a platoon is a part is conducting an exploitation and pursuit against a weak, disorganized, and demoralized enemy, it operates during darkness/limited visibility frequently and at a fast pace. Because of the enemy situation, leaders take more risks than in any other circumstances. The mounted bypass is a frequent operation. Hasty attacks are conducted when visibility is extremely limited so as to further demoralize the enemy and keep him off balance. Units move rapidly over long distances to strike at targets of opportunity.

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- **Fast movement is a key to successful disengagement. Leaders must keep men moving.**

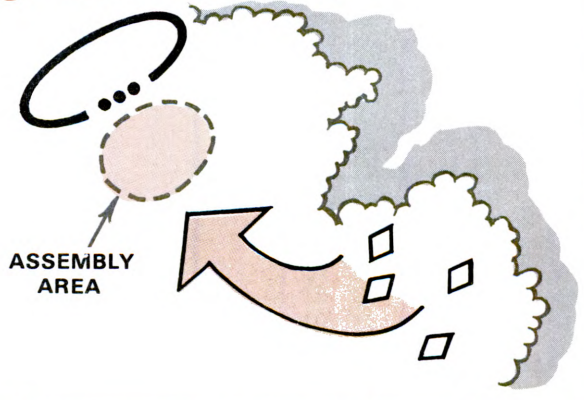
- **When heavy indirect or small arms fire is hitting the maneuver element location, but no enemy AT fire is coming on the position, the carriers should move as close to the maneuver teams' positions as possible to pick up the dismounted men and to limit casualties.**

PREPARING FOR A DISENGAGEMENT

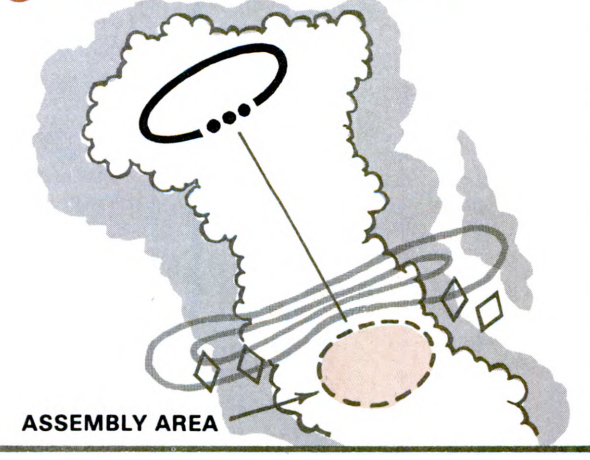
Preparation for a disengagement is part of the occupation of any battle position. Infantry and carriers are positioned to allow rapid remounting. If a position is to be temporarily occupied, the squads will normally be employed with their carrier to ease rapid movement.

When the platoon employs an overwatch and a maneuver element, platoon assembly areas and routes to the assembly areas must be chosen. A platoon assembly area is a location where the dismounted part of the platoon rejoins the carriers. The assembly area can be--

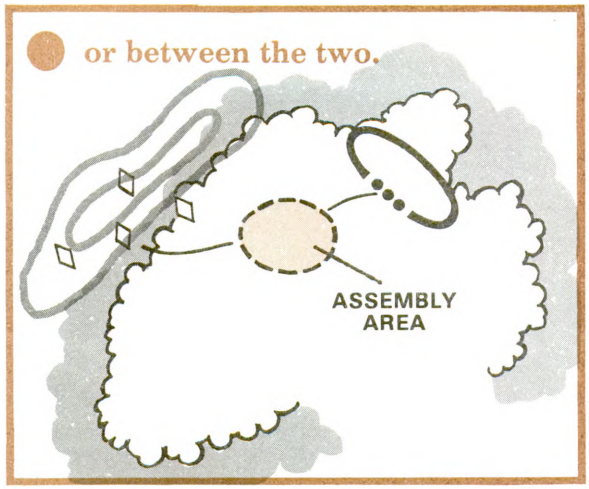
- **near the platoon (-)**



- **near the carriers' position**



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Pick routes and assembly areas which--

- **allow covered remounting.**
- **have covered routes for both (generally men require less cover to move than does the APC).**
- **speed movement (the carrier can normally move faster than men on foot).**
- **allow having one element in position to cover the other, especially if no other element is in position to cover (generally the carriers with their greater firepower are best suited for covering the movement of the platoon (-) .**

Within the assembly areas, positions for carriers are chosen which will ease quick covered remounting even when visibility is limited. Squad leaders must make sure their men know the location of the platoon assembly area, the location of the APC in the assembly area, and routes to the assembly area.

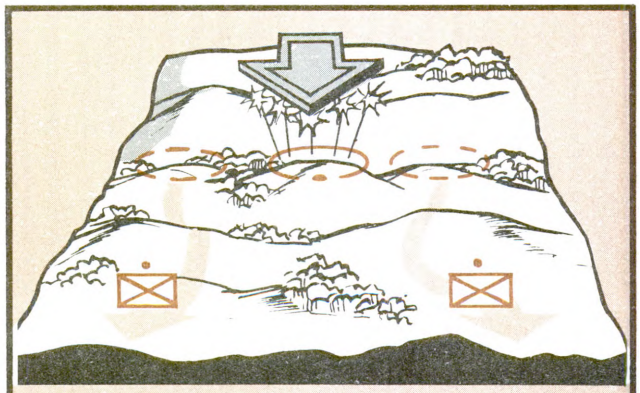
HOW A DISMOUNTED MANEUVER ELEMENT DISENGAGES

A maneuver element may disengage without providing its own overwatch by simultaneously moving all its teams or it may cover its own disengagement. When the maneuver element overwatches its own movement, it disengages by team or by thinning the lines.

SIMULTANEOUS DISENGAGEMENT

When the maneuver element simultaneously disengages, it assembles and moves as one unit as fast as possible to the platoon assembly area, using standard movement techniques, where it can join the carrier element.

DISENGAGEMENT BY SQUAD

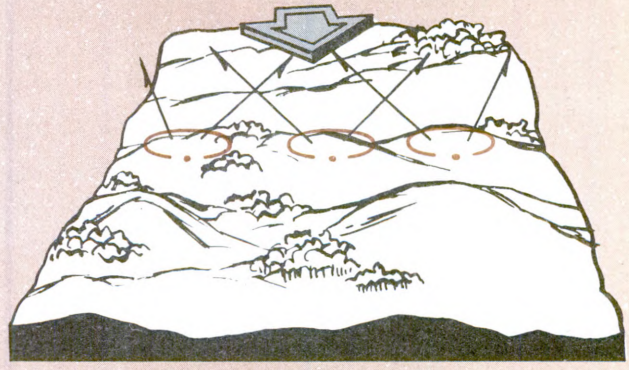


One squad, normally with a machinegun, is left on position to overwatch and the rest of the platoon moves to the rear.

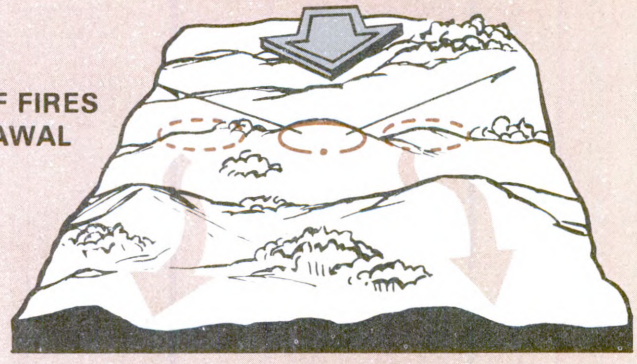
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When this happens, the squad left in position must cover the entire platoon sector to cover the movement of the rest of the platoon. Fighting positions and sectors of fire are changed as necessary to get better coverage of the platoon sector.

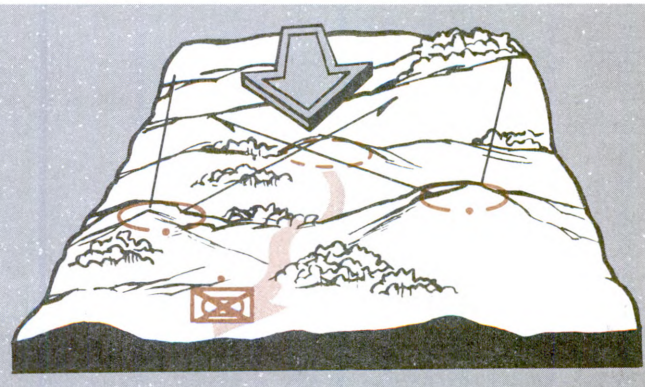
NORMAL SECTOR OF FIRES



CHANGED SECTOR OF FIRES TO COVER WITHDRAWAL



The squad left in position is disengaged when the rest of the platoon is in position to cover its disengagement.

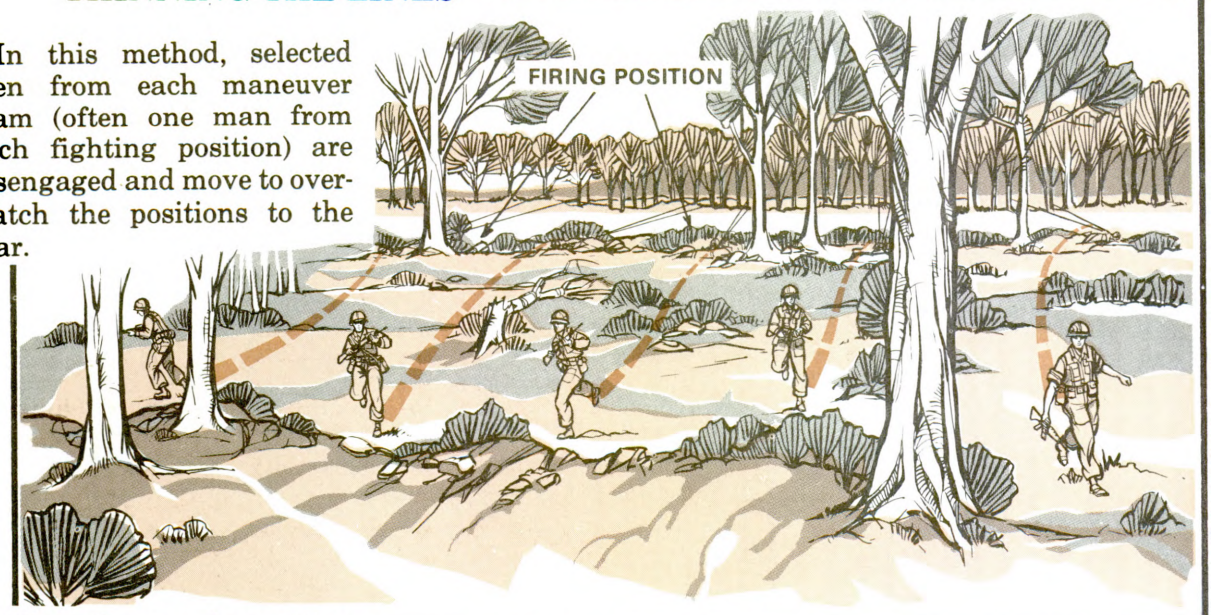


Bounding to the rear by alternating teams is continued until contact is broken. Once contact with the enemy is broken, the disengagement is complete and the maneuver element withdraws using other movement techniques.

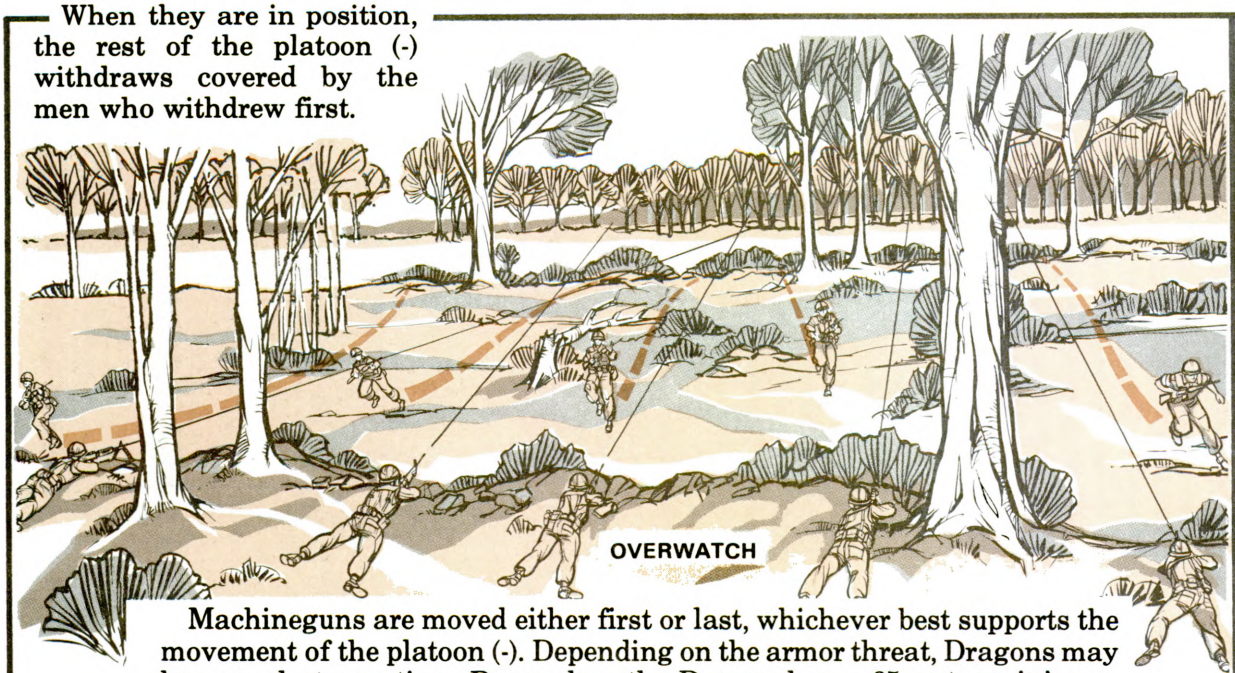
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DISENGAGEMENT BY THINNING THE LINES

In this method, selected men from each maneuver team (often one man from each fighting position) are disengaged and move to overwatch the positions to the rear.



When they are in position, the rest of the platoon (-) withdraws covered by the men who withdrew first.



Machineguns are moved either first or last, whichever best supports the movement of the platoon (-). Depending on the armor threat, Dragons may be moved at any time. Remember, the Dragon has a 65-meter minimum arming range. The platoon and squad leaders move with the last element. The assistant platoon sergeant and team leaders move back first to set up the overwatch. If the enemy is attacking as one element disengages, men remaining in position increase their rate of fire to keep the enemy from overrunning the position. As with other methods of disengagement, this process is continued until contact is broken.

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WHEN TO USE EACH METHOD

Simultaneous disengagement is favored when rapid movement is critical. The following conditions favor simultaneous disengagement:

- The enemy has not closed on the platoon or cannot shoot it; the platoon can move before the enemy can (because of an obstacle or distance between the platoon and the enemy).
- Other units of the team or TF are adequately covering the disengagement.

The platoon overwatches its own disengagement when--

- **use of overwatch forces from the platoon is required to gain enough firepower to allow the platoon to move.**
- **faced with a close dismounted enemy threat.**

Disengagement by squads has the advantage of simplicity in that the platoon's (-) normal organization and chain of command remain in effect. It is used when one squad can effectively cover the dismounted platoon's (-) sector.

Disengagement by thinning the lines allows an even distribution of fire across the platoon sector during the disengagement. It is more difficult to control than disengagement by squad. Use it when the dismounted platoon may not withdraw by maneuver team because no one maneuver team can cover the dismounted platoon sector (because the terrain is close or visibility is limited).

DISENGAGEMENT OF SQUADS EMPLOYED WITH THEIR CARRIERS

For this method the carrier teams and maneuver teams (or dismounted men) are positioned close together. The dismounted men run to their carriers and mount. The carrier teams cover the movement with fire, as necessary.

The maneuver teams can move to their carriers as one team or by thinning the lines. **Thin the lines** when the enemy pressure is close and heavy or when the carrier element cannot cover the disengagement. Movement by team is easier to control and faster. Use it when carrier teams are in a good position to cover the maneuver teams and when the enemy is still at longer ranges.

For this method, squad leaders must select routes and rally points (places where the maneuver teams will remount their carriers) considering the same characteristics the platoon leader did for selecting platoon assembly areas and routes.

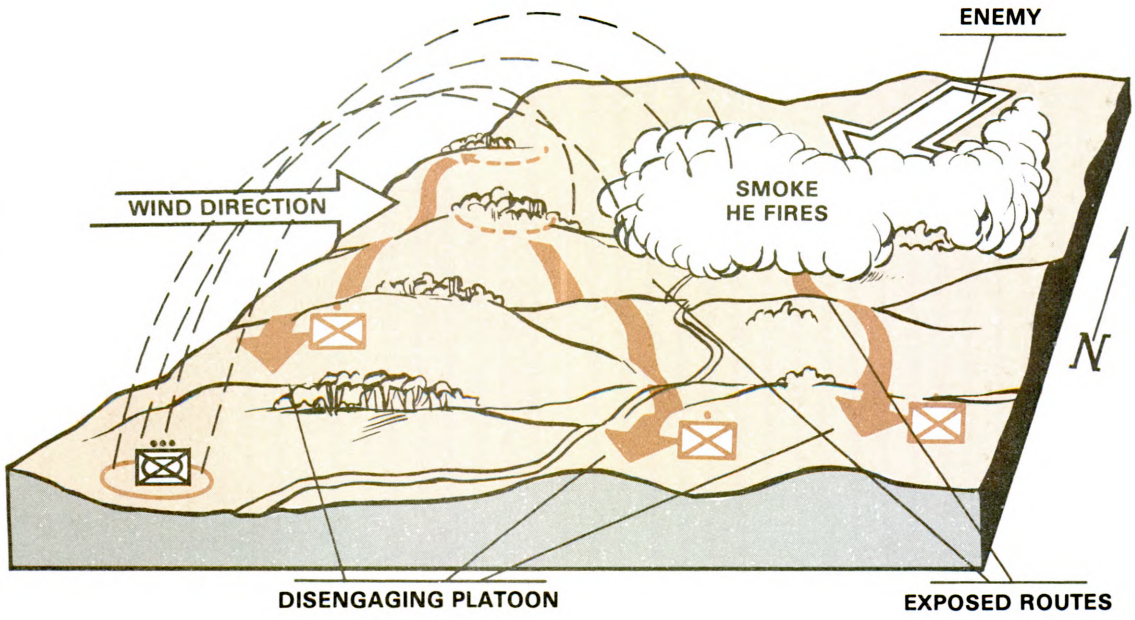
DISENGAGEMENT OF A PLATOON WHEN THE MANEUVER TEAMS HAVE REMOUNTED

Movement by a platoon is as one unit, usually covered by other elements of the company team. **Use covered routes.**

The platoon leader requests indirect fire/smoke through his FO and the team

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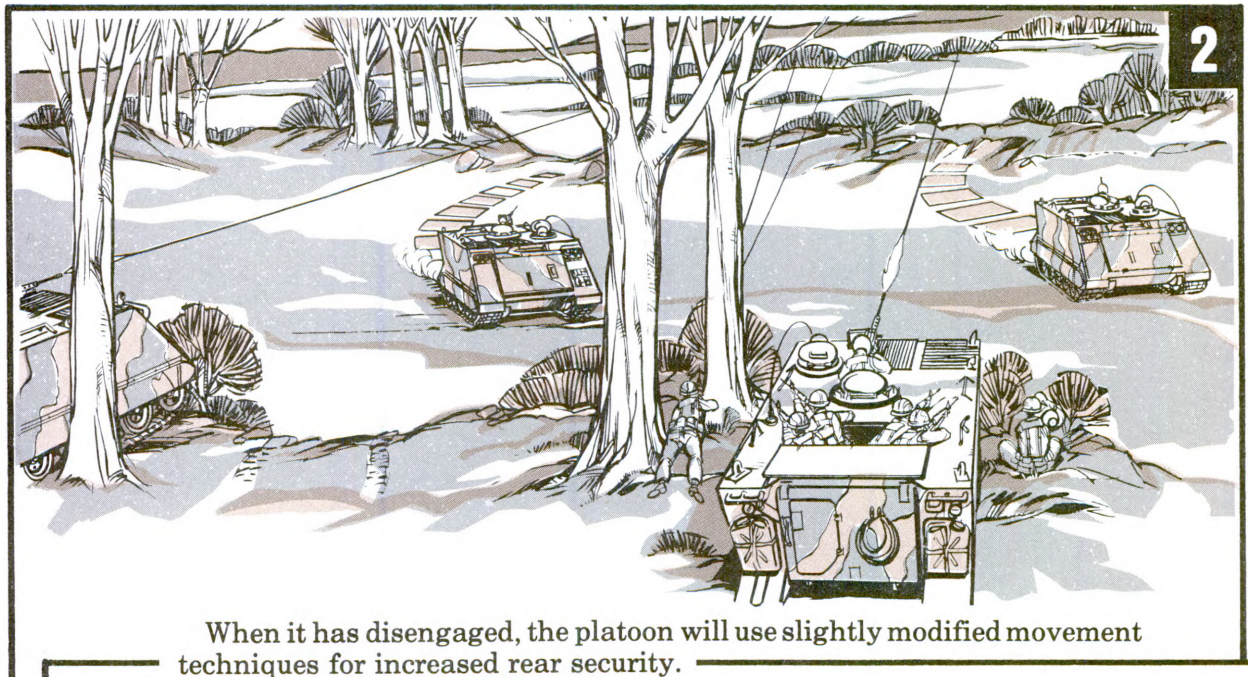
commander to cover the platoon's move. Hit enemy troops who attack with HE, and smoke exposed routes the platoon must cross.



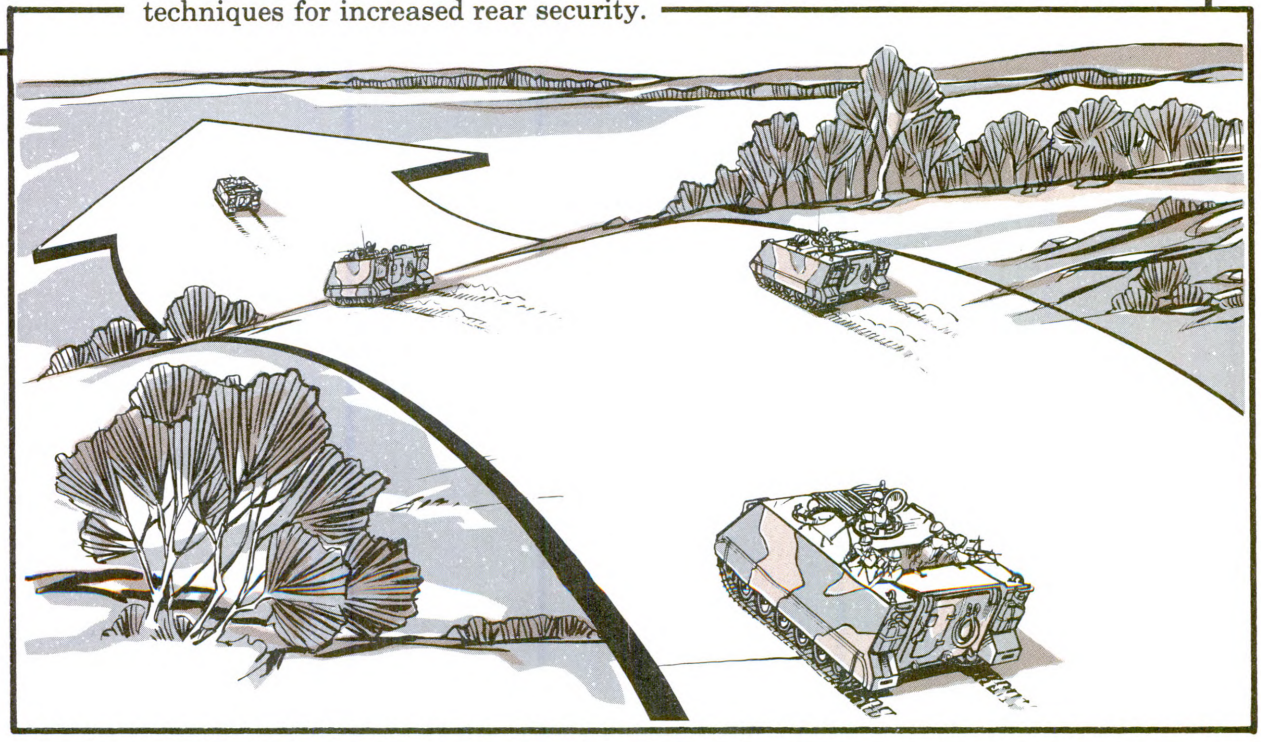
1 If more direct fire support is needed to allow his platoon to move, he asks his team commander for it. If the covering fire of other elements is not sufficient to allow it to move, the platoon may have to use mounted fire and maneuver by squads to break contact. See illustration.



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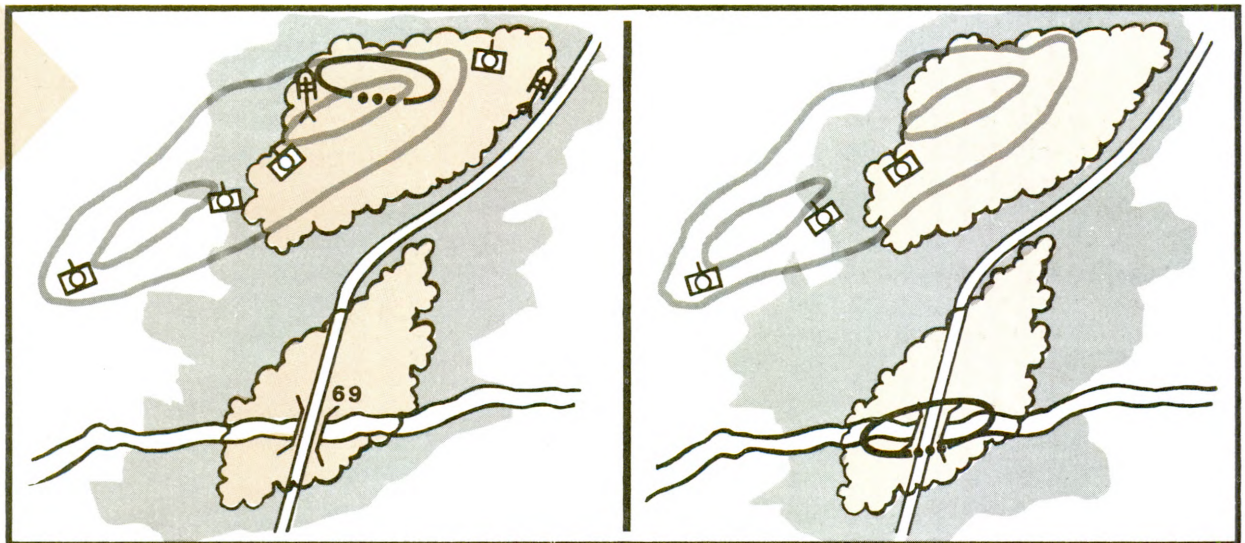


When it has disengaged, the platoon will use slightly modified movement techniques for increased rear security.



During a disengagement, the team commander may direct a mech platoon to overwatch the movement of other platoons by occupying battle positions to fire into assigned areas or to hold terrain.

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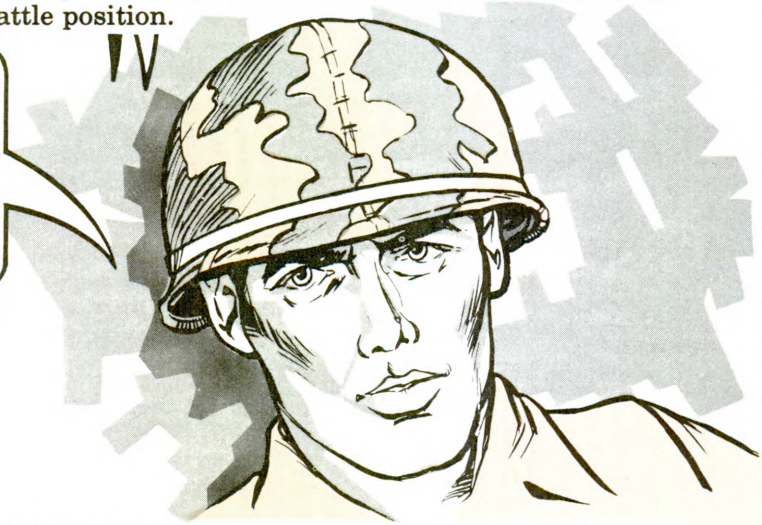


"Move to battle position 69 and secure it to allow passage of rest of team.

Mech platoon then moves to and sets up a hasty defense around the bridge and provides Dragon and machinegun fire to cover withdrawal of TOWs and tanks.

In some cases the mech platoon will be ordered to move back and help prepare a new team battle position.

"Move to battle position 54. Meet the XO. Help set up the battle position to block enemy movement down the road."



The platoon can help the XO select and mark positions for carriers, maneuver teams, TOWs, and tanks. It can build obstacles, distribute supplies, and provide guides to help the rest of the team move quickly into position when it arrives.

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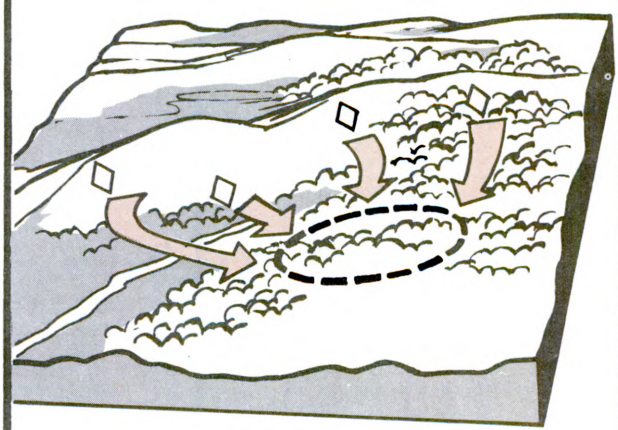
DISENGAGING WHEN NOT UNDER ENEMY PRESSURE

The success of this type of disengagement depends primarily on secrecy and deception or speed of execution. Try to pull out before the enemy realizes you are moving and before he can react. It is usually done at night or when visibility is reduced. A disengagement not under pressure can be conducted by stealth using an overwatch or by all units moving simultaneously (no overwatch).

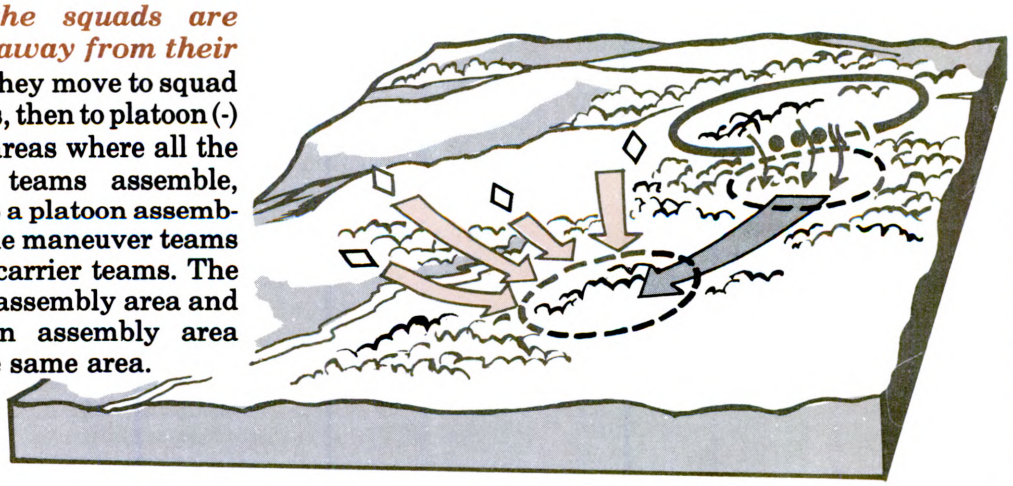
DISENGAGING USING OVERWATCH

Everybody disengages and assembles quietly while protected by an overwatch. The composition of the overwatch is as directed by the team commander. It may consist of a squad from each platoon, or one platoon from the team, or any other combination of forward elements. The overwatch force simulates the normal activities of the unit by its fire, patrols, radio traffic, noise, and other measures to hide the fact that a disengagement is taking place.

When the squads are deployed with their carriers, the maneuver teams mount their APCs on order. The squad leaders account for their men, and the squads move to a platoon assembly area. The platoon then moves to the team assembly area or to a position designated by the team commander.



When the squads are deployed away from their carriers, they move to squad rally points, then to platoon (-) assembly areas where all the maneuver teams assemble, and then to a platoon assembly where the maneuver teams rejoin the carrier teams. The platoon (-) assembly area and the platoon assembly area may be the same area.



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The platoon may move its carrier teams to a platoon assembly area over a period of time, then disengage its maneuver teams which move by foot to that assembly area.

To move his maneuver team back to the platoon assembly area to rejoin its carrier, a squad leader first assembles the team at a squad rally point to the rear of its position. He then either--

- **leads his men, as a team under his control, to the platoon assembly area.**

OR

- **sends them singly to the assembly area.**

He moves them **as a team** when the distance is long and the terrain is close. He moves them **singly** when the distance is short and the route is easy to find. In either case, he must account for all his men before moving back.

HOW THE PLATOON MOVES AFTER BREAKING CONTACT

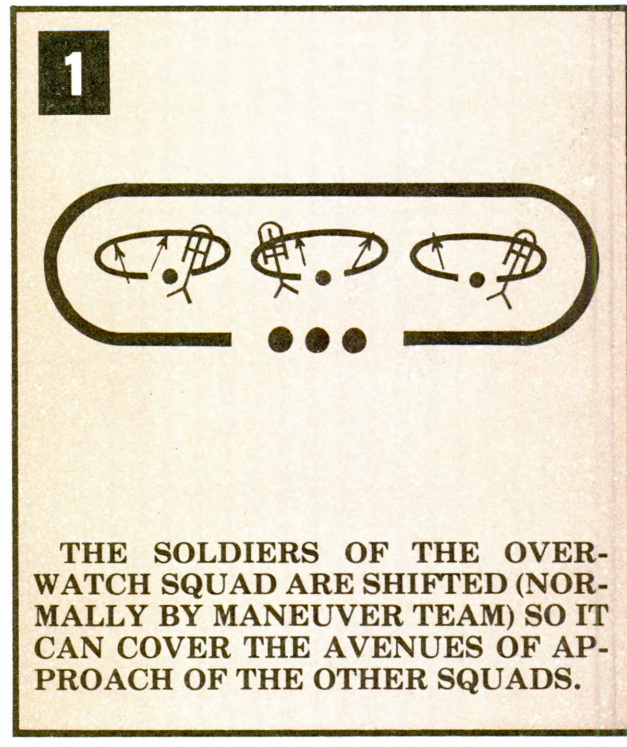
When the platoon has assembled, it moves to a location specified by the company team commander (usually, the team assembly area). For either mounted or dismounted movement the traveling formation is used for ease of control and so movement is quiet and quick. Noise and light discipline must be enforced. So that the enemy will not be alerted to the disengagement, only the overwatch is allowed to use radios.

Before movement, a platoon may have to send troops to the rear for the company team reconnaissance party. A reconnaissance party consists of men sent back to prepare a new position for occupation, by marking carrier team and maneuver team positions and to guide the team into the position. The size of the party is specified by the team commander. It may consist of the assistant platoon sergeant and one man per squad.

THE PLATOON OR SQUAD AS PART OF THE OVERWATCH FORCE

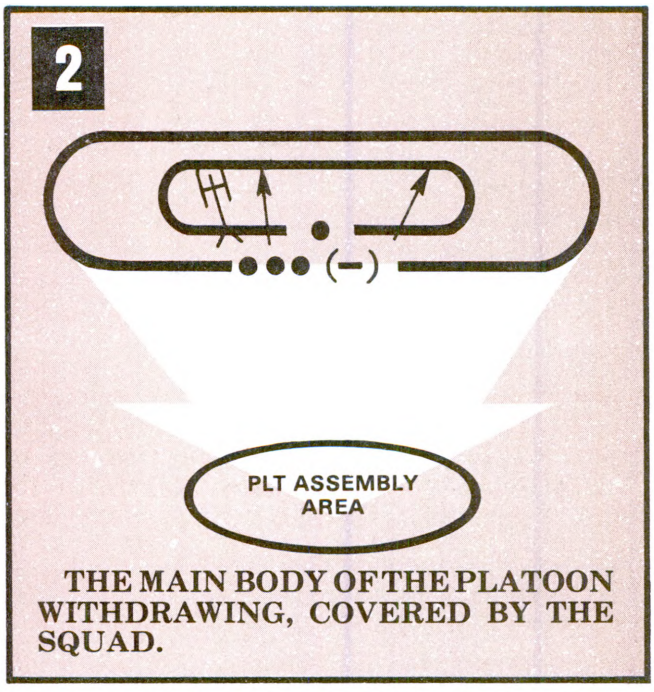
The overwatch in a withdrawal not under enemy pressure is under a single commander and protects the main body by deception, and by resistance when necessary. Prior to the withdrawal of the main body the overwatch may shift as necessary to cover the sector of the withdrawing unit. Shift men only as necessary. Too much shifting may alert the enemy. If the overwatch is too spread out, command and control is difficult. If a squad is to overwatch the rest of its platoon as it withdraws, it can do so like this:

PLATOON POSITION



THE SOLDIERS OF THE OVERWATCH SQUAD ARE SHIFTED (NORMALLY BY MANEUVER TEAM) SO IT CAN COVER THE AVENUES OF APPROACH OF THE OTHER SQUADS.

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THE MAIN BODY OF THE PLATOON WITHDRAWING, COVERED BY THE SQUAD.

When a squad overwatches the withdrawal of the rest of the platoon at least one Dragon normally stays with the squad as AT protection. The Dragon is moved to where it can best stop enemy armor.

One machinegun is also left with the overwatch. It will usually be the gun that covers the most dangerous avenue of approach.

The overwatch force withdraws on order of its commander after the main body has broken contact.

DISENGAGING BY SIMULTANEOUS MOVEMENT OF ALL TROOPS (NO OVERWATCH)

A platoon may disengage from the enemy by moving all its troops away from him simultaneously, using no overwatch. This may be done when facing a light enemy force, when a major obstacle is between the enemy and our unit, when mechanized forces are facing light enemy infantry, or when some other factor reduces the relative mobility of the enemy or slows his reaction time. When this happens, speed of execution rather than deception is the key to success. At a specified time, elements rapidly mount their carriers, move to platoon and team assembly areas, and move from that area. Platoon and squad leaders must have their men prepared to move at the designated time, but the preparation must be done so as not to tip off the enemy as to the disengagement.

DELAYING THE ENEMY

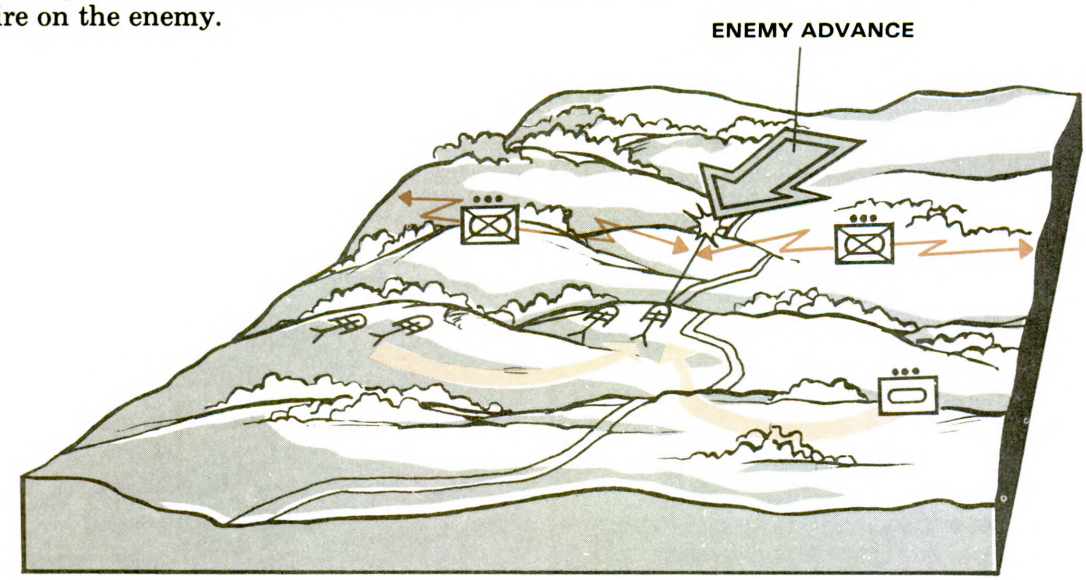
Delay action is fought to slow the enemy's advance while harming him as much as is possible. To delay, fight the enemy's advance with enough force to make him deploy; just when the enemy is bringing his force fully to bear--at the last feasible moment--the delaying force withdraws to a new position and the enemy must begin this time-consuming process again.

A mech platoon does not conduct a delay by itself. It takes part in a team or task force delay by performing missions assigned to it by the team commander. Most of these missions are standard defense missions--firing into assigned areas, setting up ambushes, roadblocks, holding a terrain feature, or screening an area. In a delay, tanks and TOWs may be the primary weapons supported by rifle platoons. The infantry can also emplace obstacles, provide local security for tanks and TOWs, and prepare battle positions in depth.

As part of a company team's delay operation, a mech platoon may have **screening missions.** The team commander will prescribe the limits of the screen, "1st Platoon screen from Clear Lake east to Hill 563." The mission of that platoon is to locate advancing enemy and give the commanders

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time to move tanks, TOWs, and other infantry to positions where they can concentrate fire on the enemy.



Infantry platoon detects enemy advance--team commander concentrates force to fight enemy.

If an enemy advance is spotted, its size, strength, and direction are immediately reported to the team commander. The platoon will then shoot enough to slow the enemy and allow other units of the TF to move into position.

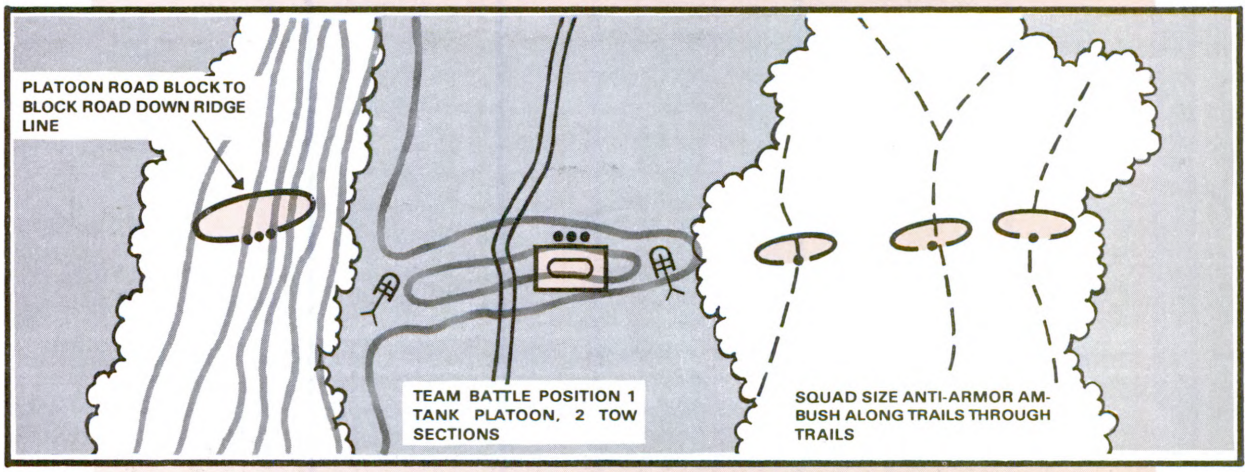
The platoon leader must keep the team commander informed of his situation and make recommendations on when to pull the platoon back. The platoon should be withdrawn to the next position before the enemy moves close enough to make disengagement impossible. However, the team commander must authorize the platoon leader to pull back to the next area to be screened.

The withdrawal is quick. The platoon uses bounding overwatch back to the next area to be screened keeping the enemy under observation with its trailing element to the extent it can.

In addition to screening, infantry squads or platoons can **defend roadblocks** and battle positions and they can set up antiarmor ambushes on enemy approaches in close terrain and on secondary armor avenues of approach. Here, a mech heavy team deploys to delay the enemy.

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In the case above, the rifle squads are positioned to keep the enemy from bypassing the team's battle position.

An infantry platoon in a delay operation may also be charged with building obstacles or minefields to slow and damage the enemy. Because of limited time, obstacles are placed mainly on vehicular approaches where the enemy is canalized and can be hit with our fire, e.g., on bridges and routes to and from them, on roads, trails, and the shoulders of such routes in areas where the terrain does not allow cross-country movement.

Because TOWs and tanks are the primary weapons used to delay the enemy in open terrain, the rifle platoons will--

- **Prepare battle positions in depth while the TOWs and tanks fight forward. In this case, they will mark positions and routes, set up obstacles in depth, provide guides, aid in resupplying tanks and TOWs when they arrive at the new position, stockpile supplies, and other such tasks.**

- **Provide local security for tanks and TOWs. In some cases, especially on wide frontages, mech infantry squads may be attached to these units, as shown.**

In this situation, a tank-heavy team occupies three battle positions with two tank platoons and one TOW section. A mech squad is attached to each, for security.

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Section V.

DEFENSE DURING NIGHT/LIMITED VISIBILITY

Conditions of night/limited visibility require adjustment to the deployment for defense. Most adjustments involve the movement of OPs to positions where they are more likely to detect enemy night incursions, infiltration, etc. There may be an increase in patrols and ambushes, and in security around tanks and TOWs. Platoon leaders may move machineguns, Dragons, and carrier teams closer to armor avenues of approach that cannot be covered from primary positions at night. Do this repositioning just before dark.



When preparing a battle position, plan early for changes to be made at night. Try to position troops to preclude major repositioning--especially for dismounted infantrymen.

The most readily available items of equipment to help you "see" when visibility is limited are the night sights for your weapons (good for darkness only) and the platoon early warning system (PEWS).

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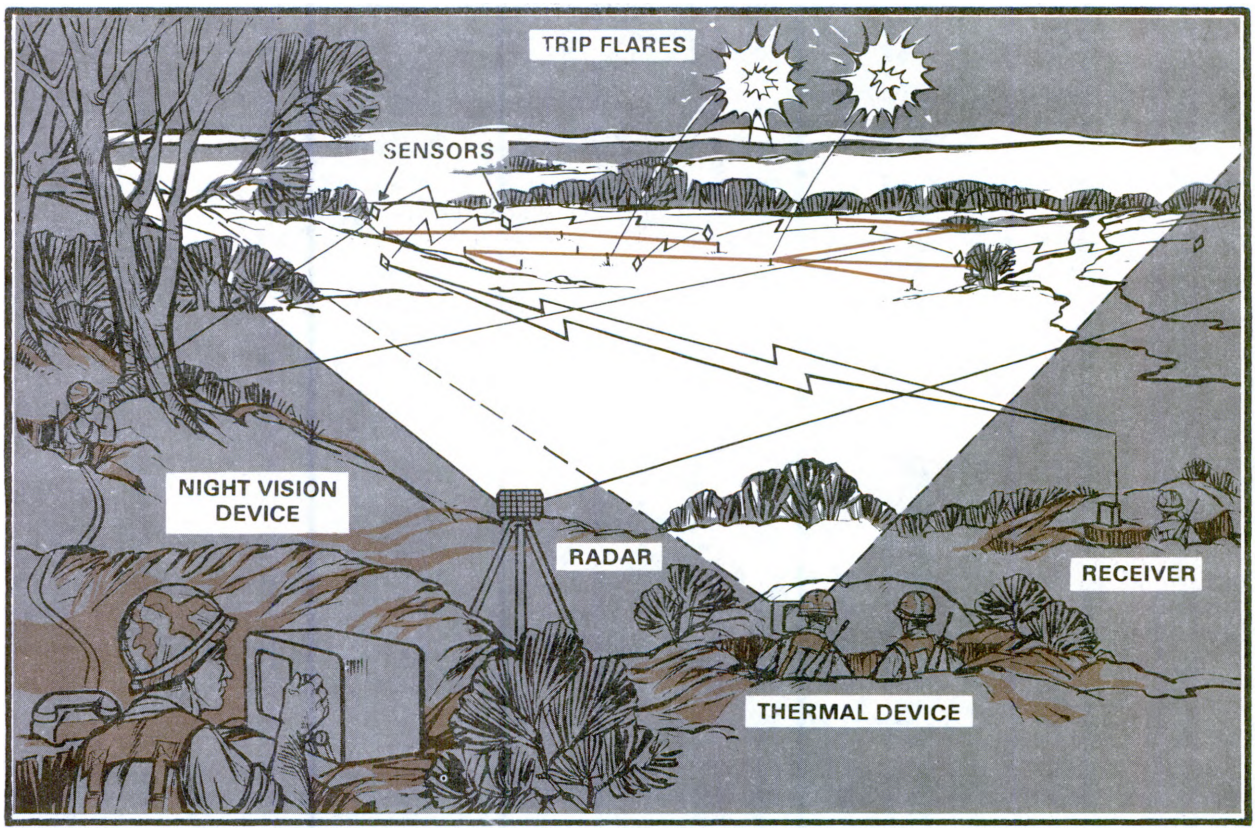
The PEWS has nine ground-emplanted sensors which transmit a radio or wire signal to a receiving set that indicates: movement in the area, whether movement is foot or vehicular, and which sensor is reporting. This device is ideal for monitoring avenues of approach which are masked by terrain features or limited visibility.

Thermal imagery devices are true limited visibility devices that penetrate fog, smoke, and dust as well as darkness. As they become available they will increase your ability to operate when you can't see with the naked eye.

PLANNING THE USE OF STANO EQUIPMENT

- Distribute night vision devices and night sights to gain as much overlapping observation as possible. Cover areas not covered by night vision devices with trip flares, anti-intrusion devices, or PEWS.
- To allow movement between positions when visibility is limited, mark and reconnoiter routes, especially those for carrier teams.
- Noise, light, and movement discipline is critical and must be enforced by all leaders.
- Establish and enforce a sleep/alert plan.
- Don't use infrared, it is too easy for the enemy to detect.

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CHAPTER 6

PATROLS, AMBUSHES, AND OBSERVATION POSTS

Section I. PATROLS

A patrol is a unit sent out by a larger unit for the purpose of carrying out a combat or reconnaissance mission. A patrol can be as small as a maneuver team or as large as a company. A unit may be modified or reinforced as necessary to get the job done.

For a particular mission, soldiers with needed skills can be attached to the patrol. These can be scout dog handlers, interpreters, medics, demolitions experts, forward observers, intelligence analysts, or communication specialists.

The planned actions on the objective area determine the type patrol which is conducted.

PATROLS FALL INTO TWO GENERAL CATEGORIES

1 RECONNAISSANCE	2 COMBAT PATROLS
● Zone Reconnaissance	● Ambush
● Area Reconnaissance	● Raid
● Local Security	

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CAPABILITIES

Mechanized infantry units are capable of conducting all types of dismounted patrols and can conduct part of or all of a patrol mounted. Mounted reconnaissance and combat patrols are common missions for mechanized infantry squads. Mounted patrols usually consist of at least two mechanized squads with their carriers. Rarely will one mechanized squad conduct a mounted patrol by itself.

A patrolling mission is in some ways different from other missions.

REQUIRES INDEPENDENT OR SEMI-INDEPENDENT ACTION.

A patrol mission may take the squad away from the direct overwatch of the platoon on which it can rely for support. The patrolling squad may have some limited direct fire support, but it is more or less on its own. It must be self-sufficient. If and when it does become engaged, it must rely on its own resources and must either defeat the enemy or disengage. Reinforcement will normally not be possible.

A combat patrol must move undetected until it is close enough to its objective to insure that it can destroy the resistance, complete the mission, and depart the area before reinforcements can be brought in by the enemy. During reconnaissance missions, the patrol strives to complete the mission totally undetected by the enemy. For the mech squad that is on a mounted patrol, this means that it must use the terrain driving rules.

REQUIRES DETAILED PLANNING.

Patrolling requires well-thought-out plans and coordination. Thorough reconnaissance is desired. Nothing is left to chance. Alternate plans and contingencies must be developed and coordinated. Each soldier must know exactly what he is to do. Each piece of equipment must be inspected.

SHOULD BE REHEARSED.

To insure that every patrol member knows his responsibilities and tasks, the patrol leader should rehearse every phase of the operation with his patrol, whenever possible. Accurate and thorough rehearsals increase the probability that the patrol will succeed in accomplishing its mission.

ASSIGNING TASKS

When given a patrol mission, the patrol leader organizes his men and equipment based on the tasks to be performed at the objective. He assigns one or more tasks to each subordinate team within the patrol. For instance, in a platoon-size dismounted combat patrol with a raid mission, one maneuver team may have the task of providing security and supporting fire to the maneuver team(s) assaulting the objective. The patrol may need to carry special equipment or weapons. The patrol should be kept as small as possible to avoid detection, consistent with unit integrity. Do not take a man on patrol if he might compromise the mission, e.g., a man with a cold who may cough, or a man not able to keep up.

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PATROL ORDER

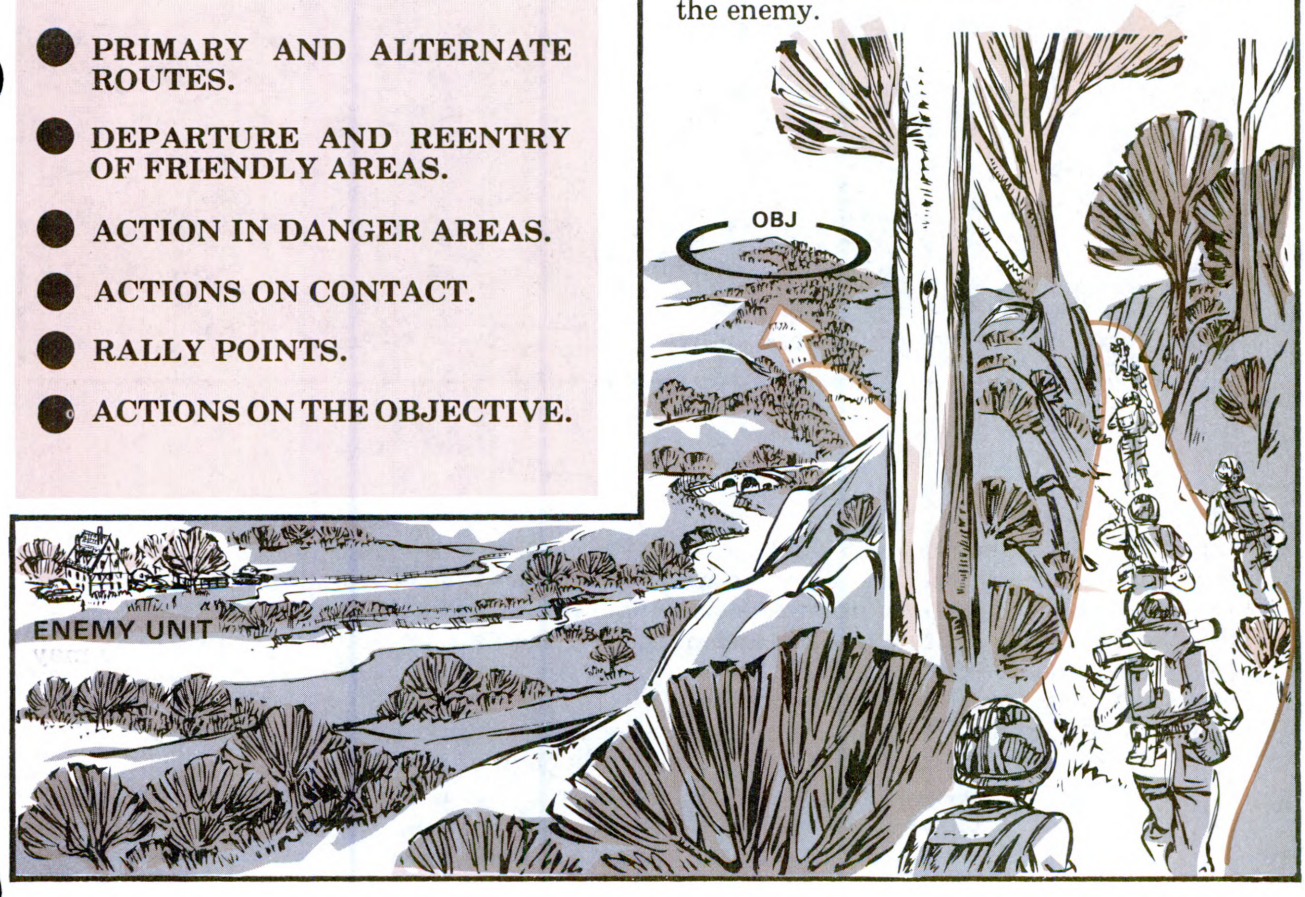
The patrol order is issued in much the same way as any other operation order. If it is a squad-size patrol, the platoon leader gives detailed instructions to the squad leader.

The platoon leader gives all of the duties that pertain to the squad when he gives the squad's mission. The squad leader then assigns the duties to his men. The entire squad should be present when the squad leader gives his order.

In addition to standard operation order items, the patrol leader covers the following in his order:

- **PRIMARY AND ALTERNATE ROUTES.**
- **DEPARTURE AND REENTRY OF FRIENDLY AREAS.**
- **ACTION IN DANGER AREAS.**
- **ACTIONS ON CONTACT.**
- **RALLY POINTS.**
- **ACTIONS ON THE OBJECTIVE.**

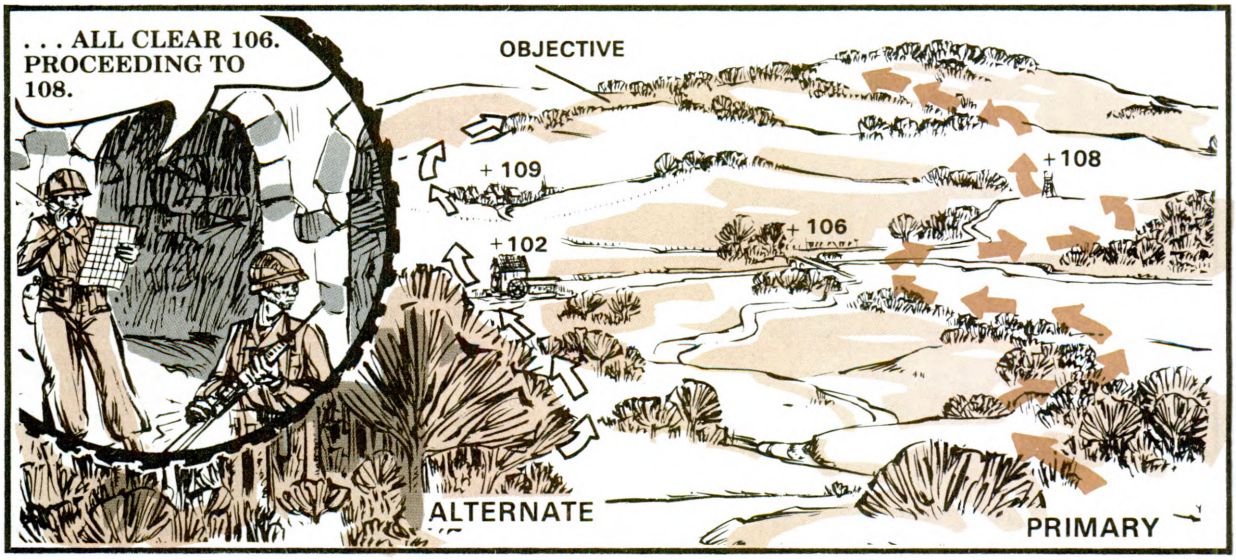
In patrolling, the unit uses the same basic movement techniques discussed in chapter 4. However, the patrol wants to avoid contact unless it is according to the plan. The patrol's mission could be compromised by premature or unexpected contact. Lead elements seek the enemy's location and avoid contact. If contact is established, they try to break contact unless the patrol has been detected and the enemy is so weak that the squad can destroy him readily without compromising the operation. To break contact, the leading or bounding element stops and backs away as soon as contact is made. It does not open fire unless necessary to allow it to back away from the enemy (often the enemy will shoot if he suspects contact, and the return of fire will confirm contact). The lead element warns the rest of the patrol which also backs away. The patrol then tries to find another route around the enemy.



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ROUTE SELECTION AND PLANNING

The patrol leader selects a primary and at least one alternate route to and from the patrol objective. Each route is divided into legs or sections which start and end at recognizable terrain features. This technique enables the patrol leader to remain oriented and check progress throughout the patrol. When terrain permits, the legs may be on a compass azimuth or along a recognizable terrain feature and paced off during the patrol. Enemy STANO devices and the requirement to use covered and concealed routes will normally prohibit movement on a direct compass azimuth. TRPs are planned on recognizable terrain features along the patrol route to allow the patrol to send reports and call for supporting fire.



RALLY POINTS

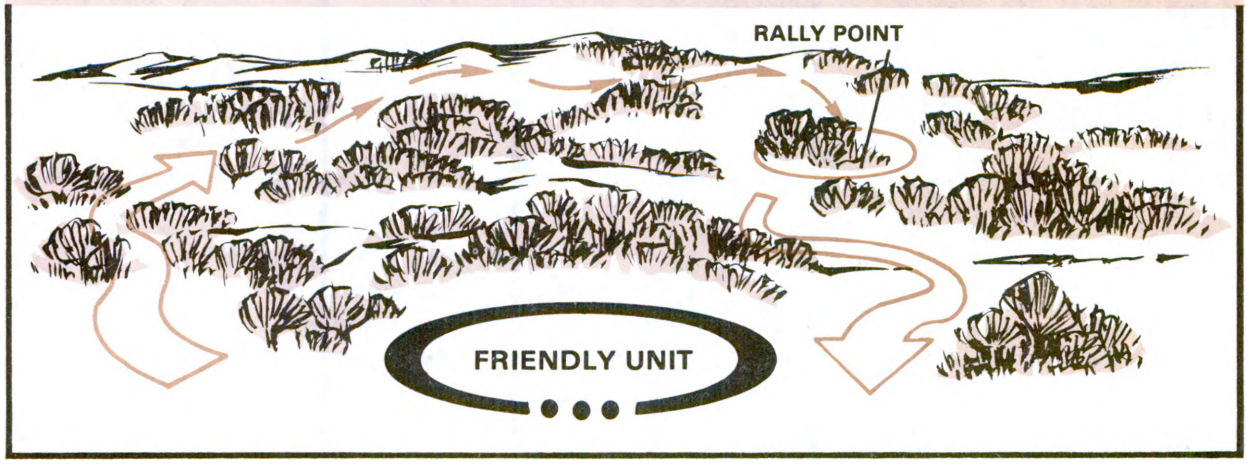
Rally points are used along the patrol route to reassemble the patrol if it becomes dispersed. Rally points are selected on the near and far sides of danger areas. Additional rally points may be selected along the route as required or designated during the patrol. The patrol leader must state the action to be taken at rally points. During the patrol, additional instructions are issued. Each man must know the rally point in case the patrol becomes dispersed. Normally, instructions provide for continuing the patrol after a certain number of men arrive at the rally point or after a certain period of time. The senior man at the rally point will, in the absence of the patrol leader, decide how to best accomplish the mission.

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DEPARTURE AND REENTRY OF FRIENDLY LINES

The movement away from and back into friendly positions is one of the most critical parts of the patrol. The patrol leader is normally given points of departure and reentry. The patrol leader must arrange for guides through obstacles, code words, recognition signals, and must verify each member of the patrol to insure there are no infiltrators. Normally during reentry the patrol leader will stop at a rally point and contact friendly units to receive clearance before reentry.

COORDINATE FOR REENTRY BEFORE YOU DEPART!



DANGER AREAS

When moving to the objective, a leader must avoid danger areas or areas where the chance of the enemy detecting the patrol is likely--but sometimes they cannot be avoided.

TYPICAL DANGER AREAS ARE:

- highways
- streams
- large open areas
- known enemy positions

Special techniques must be used at danger areas.

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Part of the lead element may secure the flanks and have the remainder of the patrol pass through them to the far side.



Each danger area is different, and you may use many different crossing techniques. However, there are certain things to do in the following order:

- Secure the near side.
- Secure the flanks.
- Secure the far side.
- Cross the danger area.

Reconnoitering and securing the near side may involve nothing more than a visual observation. It may also involve placing a security element some distance out on both sides of the crossing point to give early warning of enemy approach.

When on a mounted patrol, the leader should stop short of the danger area and dismount as many men as necessary to do the things listed above.

RECONNAISSANCE PATROLS

On a zone or area reconnaissance patrol, mechanized infantry units may move to the objective area mounted or dismounted or conduct the entire mission mounted, depending on the situation and mission.

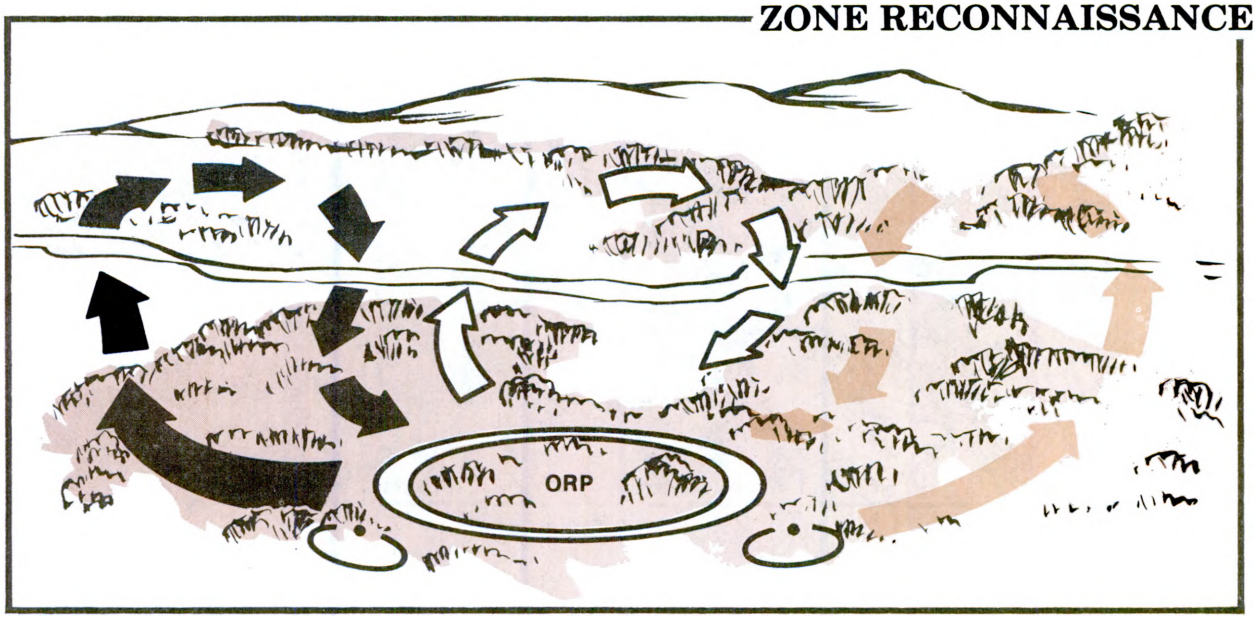
The patrol is halted and concealed at the objective rally point (ORP). This is the rally point near the objective (point or area which must be reconnoitered to accomplish the mission). Security is posted at the ORP and the patrol leader makes his reconnaissance

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to confirm the location of the objective and finalize his plan for the reconnaissance required by the mission. On his return to the OPR, he gives patrol members their instructions and the (mission) reconnaissance is conducted by the recon element.

When the reconnaissance is completed the information is disseminated to all members, a preliminay report is made (if the patrol is so instructed and equipped with a radio), and the patrol returns to its friendly area where it makes a full report.

ZONE RECONNAISSANCE



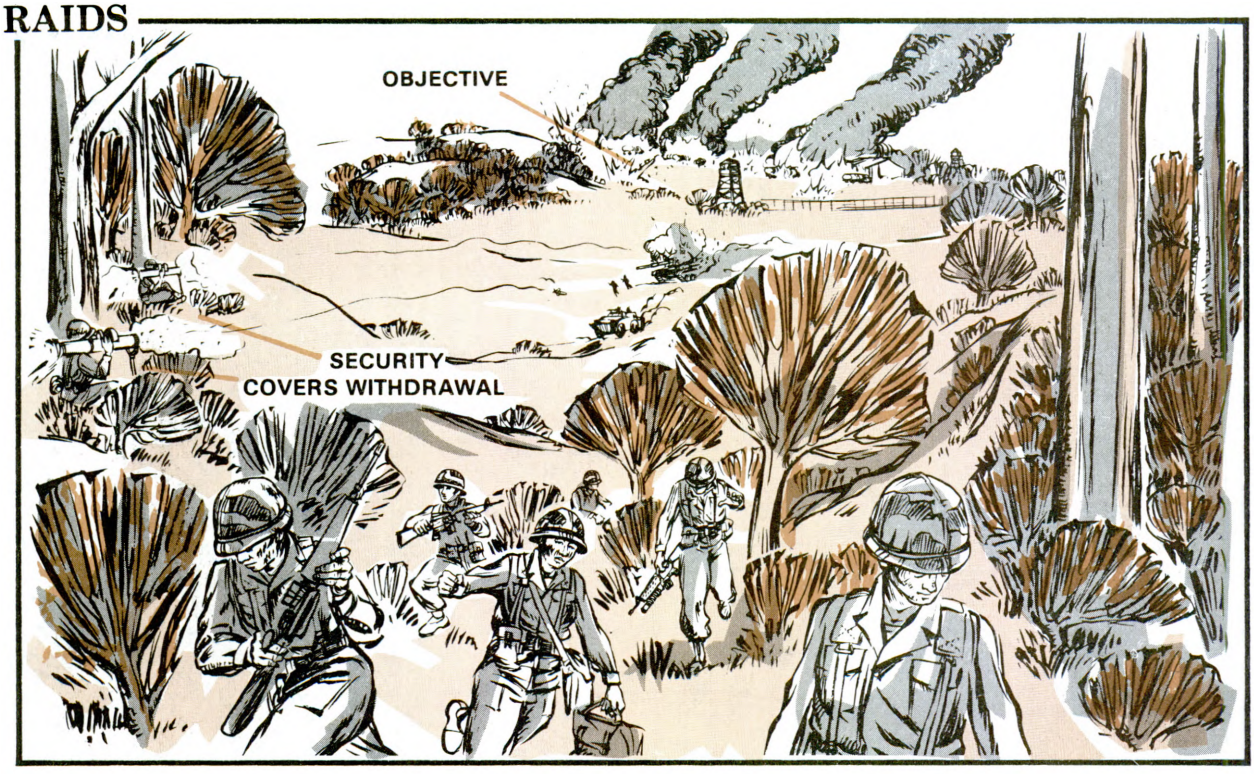
When a large zone is to be reconned the entire patrol is used to reconnoiter it. It may break down into smaller teams which in turn recon specific parts of the larger area. When teams are not to return to the ORP, they assemble at some other designated rally point. This may be done when teams must avoid moving through an area twice or when the objective is approached from the rear.

PATROLS FOR LOCAL SECURITY

Patrols for local security normally follow routes designated by the team commander. He may designate specific areas or points to be checked in detail. The techniques for this type of patrol are the same as described earlier.

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RAIDS



The mission of a raid patrol is to destroy a specific enemy position, installation, or personnel. The patrol uses the techniques of a reconnaissance patrol to get to the area to be raided, then conducts an attack. The actions at the objective must be accomplished quickly so the patrol can reassemble and leave the area before the enemy reacts.

The patrol leader must assign tasks to his patrol for a raid. Security is placed to provide early warning of approaching enemy, to seal all avenues of approach and escape by fire, and to cover the withdrawal of the patrol to the ORP. He assaults with whatever is necessary to accomplish the destruction mission. It may include men assigned to carry demolitions, handle prisoners, and search. Supporting weapons are employed to cover the actions of the assault by delivering accurate, massed fire on the objective. This may be done from stationary positions or by moving with the assault.

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Section II.
AMBUSHES

An ambush is a surprise attack from a concealed position on a moving or temporarily halted target. The following terms apply:

- **AMBUSH SITE** - the terrain on which a point ambush is established.
- **KILL ZONE** - the area on which you concentrate your fire to kill the enemy.
- **AMBUSH FORCE** - the unit which establishes an ambush.
- **ATTACK FORCE** - the element of the ambush force in a point ambush, which fires and/or assaults into the kill zone to destroy the enemy.
- **SECURITY FORCE** - the early warning or security element of a point ambush.
- **NEAR AMBUSH** - an ambush in which the attack force assaults into the killing zone.
- **FAR AMBUSH** - an ambush in which the attack force does not assault into the killing zone. This may be appropriate in open terrain having good fields of fire or when attack is by fire only (armor ambush).

THERE ARE TWO TYPES OF AMBUSH

1 **POINT AMBUSH**

2 **AREA AMBUSH**

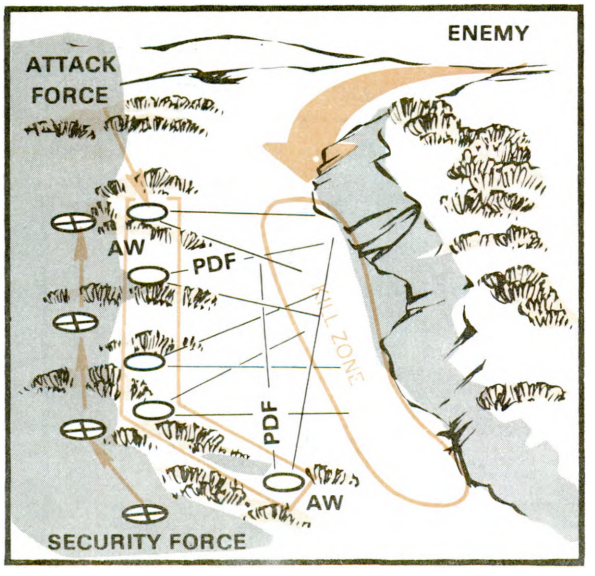
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POINT AMBUSH

A point ambush is positioned along the enemy's expected route of march, with the ambush elements deployed to fire into a single killing zone.

FIRE THE FLANK WEAPONS IN AN AMBUSH SO AS TO PREVENT ESCAPE OF THE ENEMIES YOU AMBUSH.

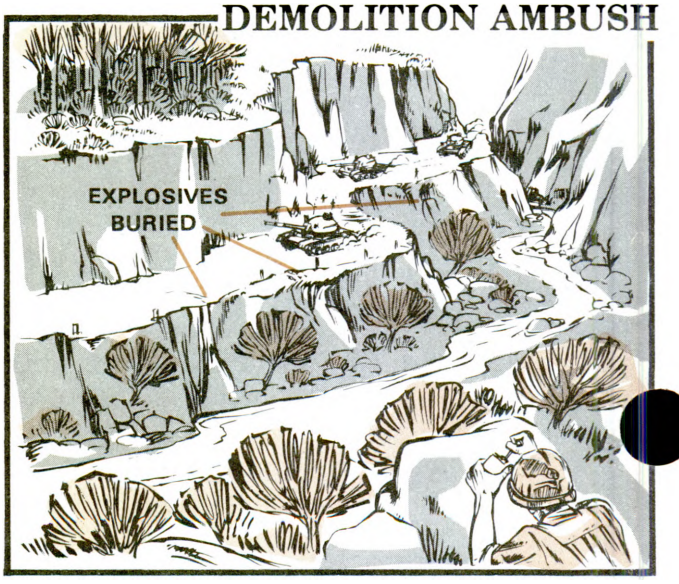
If possible, the far side of an ambush should be an obstacle, e.g., rivers, cliffs, thick woods. If no obstacle is present, lay some mines.



The security force must secure the rear and flanks, and be prepared to cover the withdrawal of the attack force, and seal off the ends of the killing zone to prevent enemy escape or reinforcement.

Site as many weapons as possible to shoot enfilade fire down the avenue of approach.

DEMOLITION AMBUSH



Demolition ambush techiques may be used in conjunction with any ambush, or as the primary method of attacking the enemy.

Electrically detonated mines or demolition charges, or both, are planted in an area over which a target is expected to pass. This may be a portion of a road or trail, an open field or any area which can be observed from a distance.

Activating wires are run to a concealed observation point sufficiently distant to insure safety of the ambushers.

Use as large a force as necessary to mine the area. A small force stays behind to initiate the ambush.

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When a target enters the mined area (kill zone) the remaining force detonates the explosives and withdraws immediately.

EXECUTION OF A POINT AMBUSH

SIGNALS

Signals to execute the ambush are normally given by exploding a claymore or by firing a machinegun or the patrol leader's weapon, or by a combination of these.

Often signals are required to--

- *Alert the patrol to enemy approach.*

  A telephone can be run from the security elements to the main body of the patrol. Men can be linked with communication wire on which a designated number of tugs tells of enemy approach.

- *Lift or shift fire and assault the target.*

  Voice commands, whistles, or pyrotechnics may be used. All fire must stop or shift at once so that the assault can be made before the target can react.

- *Withdraw the ambush.*

  This too, can be voice commands, whistles, or pyrotechnics.

WITHDRAWAL TO THE OBJECTIVE RALLY POINT

The ORP is located far enough from the ambush site that it will not be overrun if the enemy attacks the ambush. Routes of withdrawal to the ORP are reconnoitered. Situation permitting, each man walks the route he is to use. When the ambush is to be executed at night each man must be able to follow his route in the dark.

On signal, the patrol quickly but quietly withdraws to the objective rally point, reorganizes, and begins its return march.

If the ambush was not successful and the patrol is pursued, withdrawal may be by bounds. The last group may arm mines, previously placed along the withdrawal route, to further delay pursuit. Preplanned, on-call indirect fire support is effective in covering withdrawal and to delay and disorganize any pursuit.

The basic techniques for executing a point ambush apply equally against dismounted or armored enemy forces.

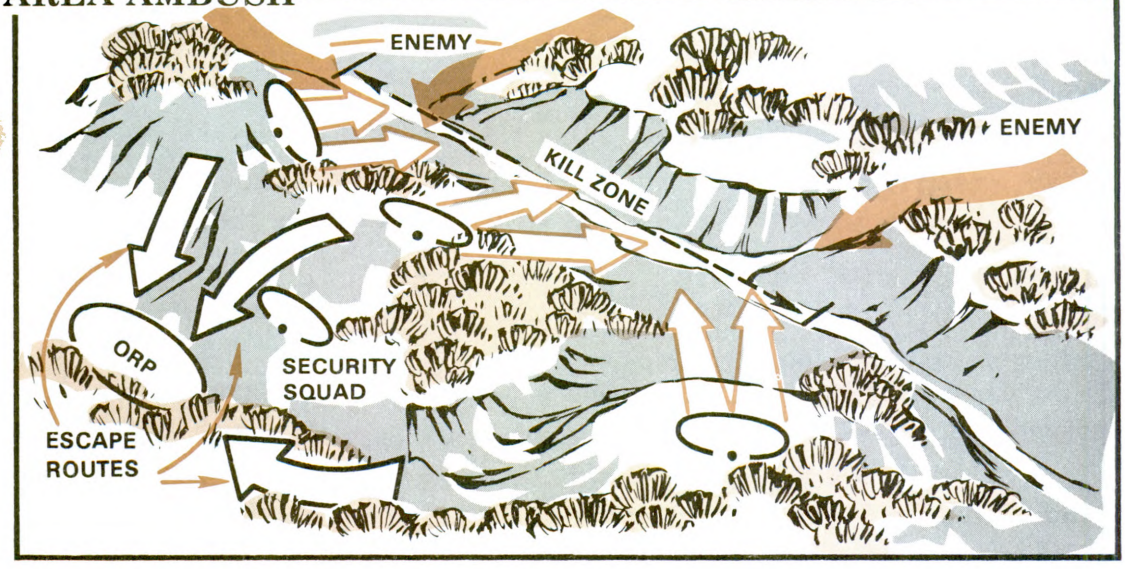
AREA AMBUSH

An area ambush is a series of point ambushes which are coordinated over an area to accomplish a specific purpose. This type is often employed in counterguerrilla warfare to kill enemy infiltrating an area.

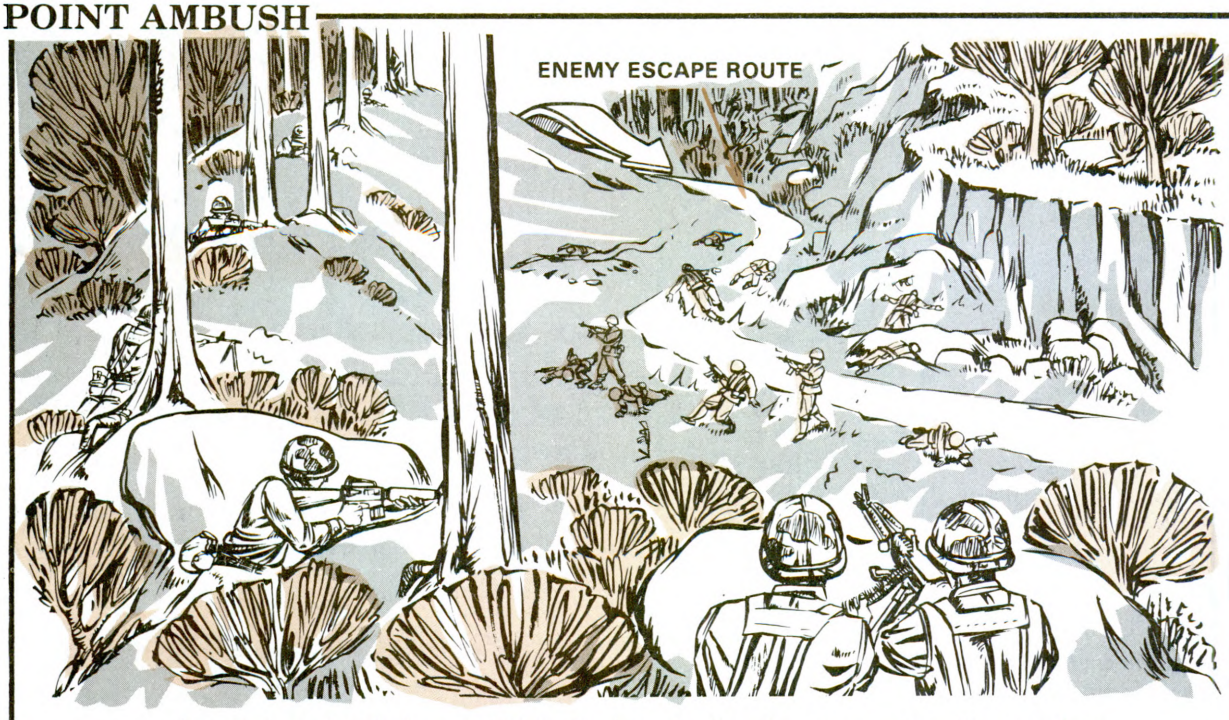
A VERSION OF THE AREA AMBUSH IS AS FOLLOWS:

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AREA AMBUSH



POINT AMBUSH



A point ambush is established at a site having several trails or other escape routes leading away from it. The site may be a water hole, an enemy campsite, a known rendezvous point, or on a frequently traveled trail.

Point ambushes are established along the trails, stream beds, or other escape routes leading away from the central killing zone.

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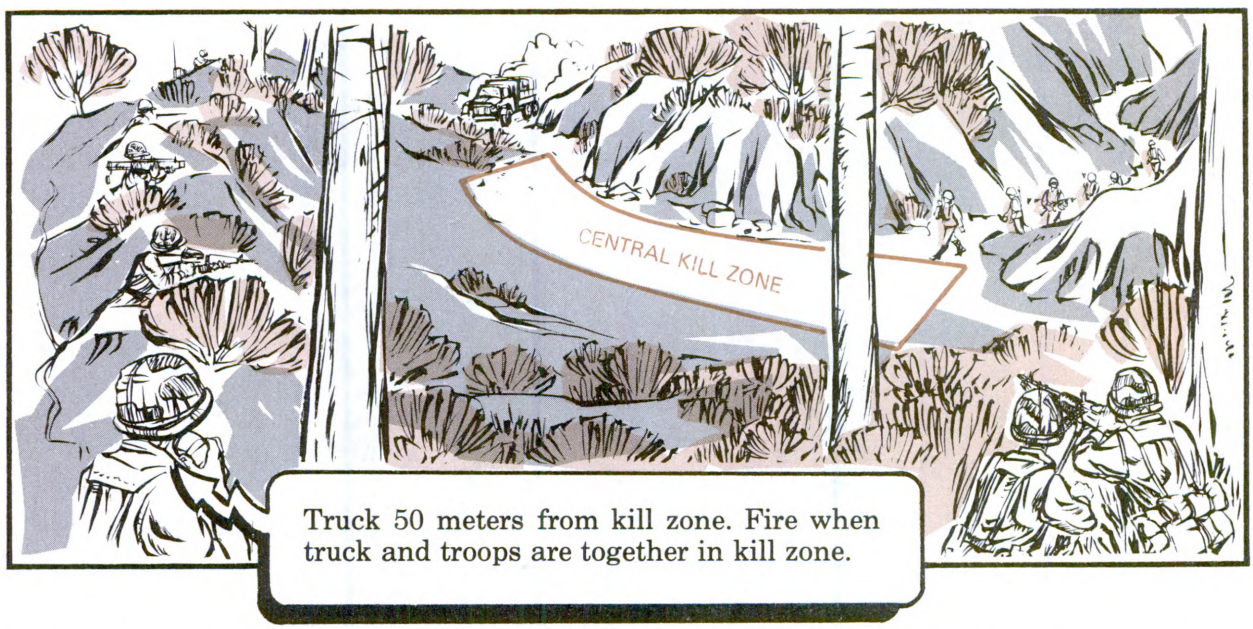
DIRECTIONS OF FIRE

MUST BE PLANNED

CAREFULLY

The target, whether a single group or several groups approaching from different directions, is permitted to move to the central killing zone. Outlying ambushes report approaches of the enemy by wire. They do not attack (unless discovered).

The ambush is initiated when the target moves into the central killing zone.



Truck 50 meters from kill zone. Fire when truck and troops are together in kill zone.

When the target breaks contact and tries to disperse, escaping portions are intercepted and destroyed by the outlying ambushes.

The multiple contacts achieve increased casualties, harassment, and confusion.

This version of the area ambush is best suited to counterguerrilla operations in terrain where movement is largely restricted to trails. Ambushes produce best results when they are deliberately established.

ANTIARMOR AMBUSH

The purpose of an antiarmor ambush is to destroy one (sometimes two) armored vehicles.

A squad is a normal size unit for an antiarmor ambush. In some situations you may have to organize three- or four-man armor ambushes. When you get this mission, make sure that each team has communication equipment, knows where it is to go, what it must do, and how to get back. A three- or

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four-man team considers the following for setting up and executing an antiarmor ambush.

THE SQUAD LEADER MUST--

ORGANIZE

When told to conduct an armor ambush, the squad leader organizes an armor-killer team and a support (security) team.

The **ARMOR-KILLER TEAM** consists of the element firing into the kill zone. Normally because of its great killing power, range, and accuracy the Dragon is the primary weapon of this team. LAWs and machineguns may be used to supplement the fire of Dragons. Where fields of fire are very short (less than 100 meters) LAWs may be the primary antiarmor weapon. When LAWs are the primary antiarmor weapon, the armor-killer team must be larger so it can mass LAW fire into the kill zone to insure destruction of the enemy armored vehicle.

The **SUPPORT/SECURITY TEAM** provides early warning and security for the ambush. It may also be positioned to cover the withdrawal of the armor-killer team.

The ambush may, or may not, be supported by the carrier.

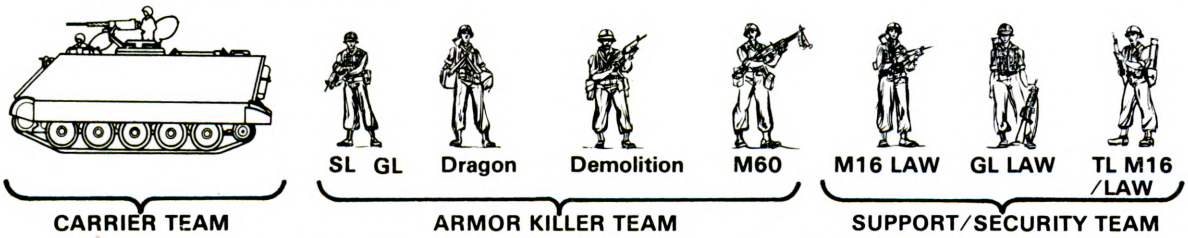
NOT SUPPORTED BY THE CARRIER

(Nine-man maneuver team, M60 machinegun with Dragon attached)



SUPPORTED BY THE CARRIER

(Nine-man squad)



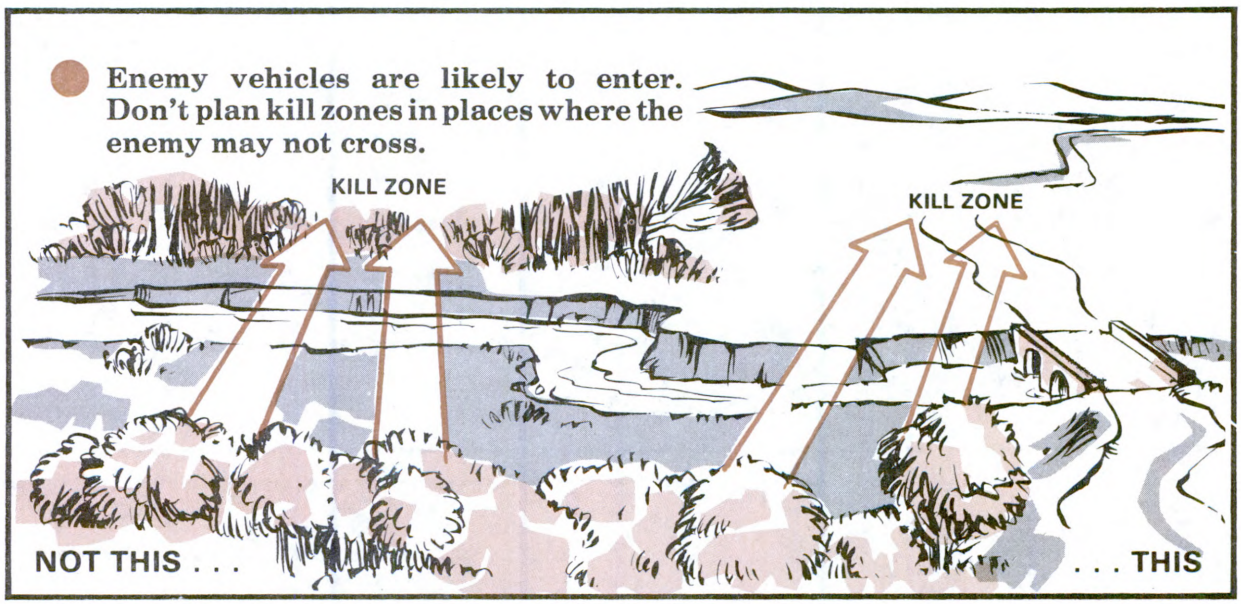
NOTE: **The squad leader puts himself in the armor killer team. He does this so he can control the Dragon gunner and decide when to open fire.**

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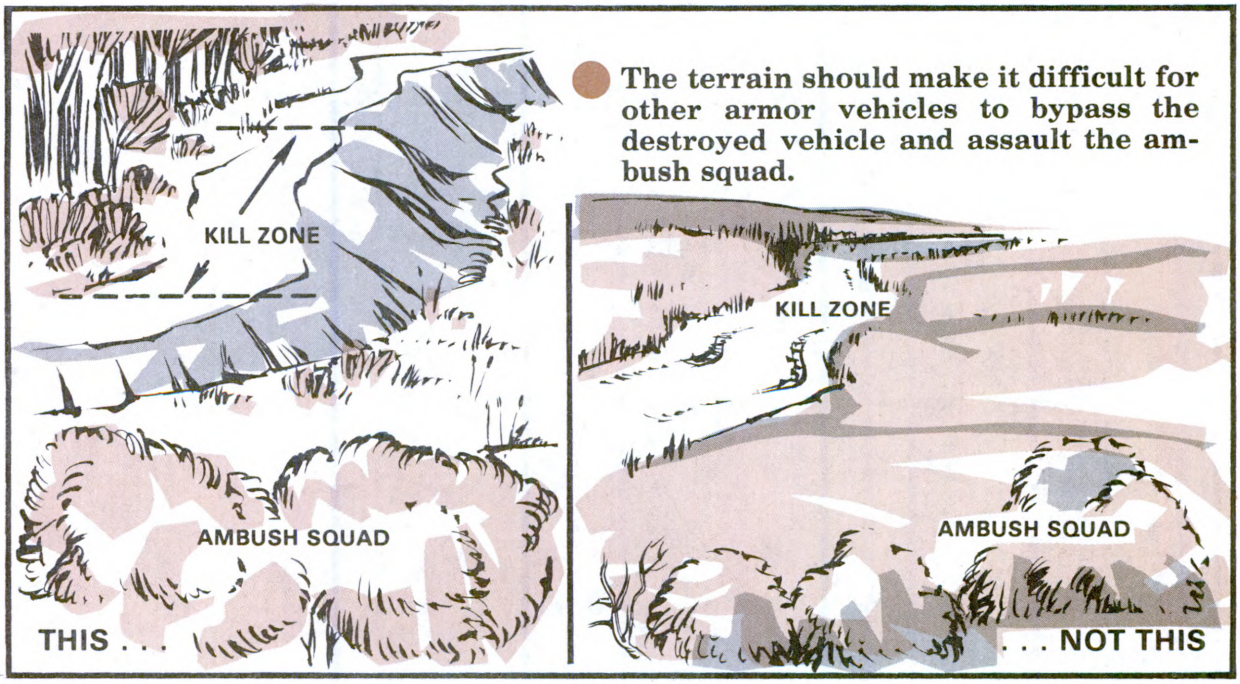
SELECT THE EXACT AMBUSH SITE

The platoon leader will give the general location of the ambush. The squad leader must select the best place to put his squad. The squad positions are based primarily on the location of the kill zone. When he arrives at the ambush site, the squad leader must reconnoiter and identify the kill zone. An ideal kill zone has these characteristics:

- Enemy vehicles are likely to enter. Don't plan kill zones in places where the enemy may not cross.

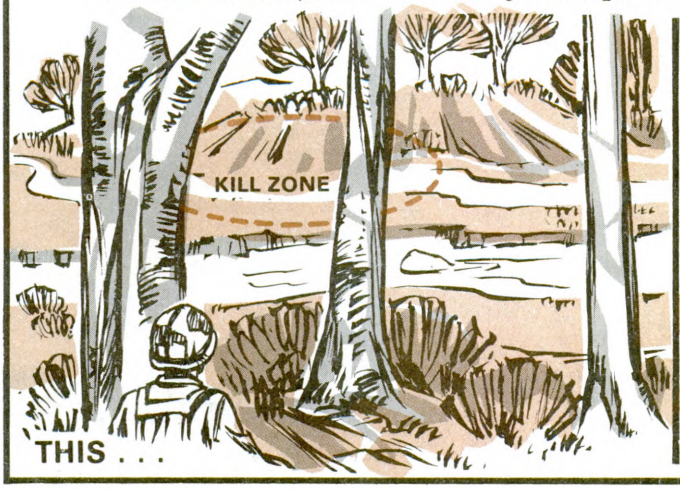


- The terrain should make it difficult for other armor vehicles to bypass the destroyed vehicle and assault the ambush squad.

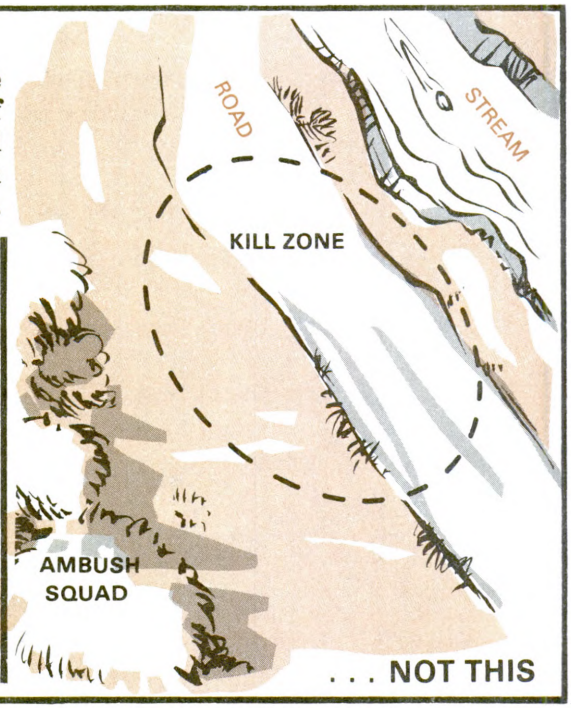


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- There is a natural obstacle between the kill zone and the ambush squad. If natural obstacles are not present (and time permits) artificial obstacles, such as a minefield, can be made by the squad.

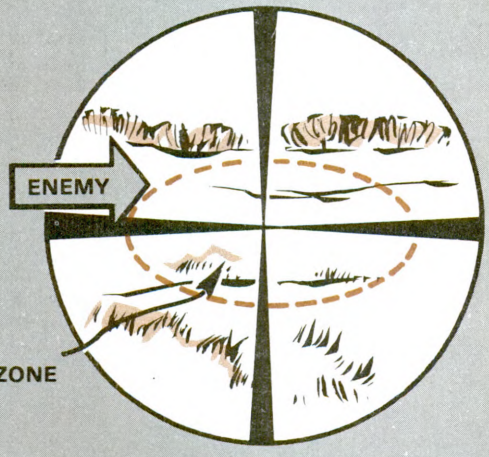


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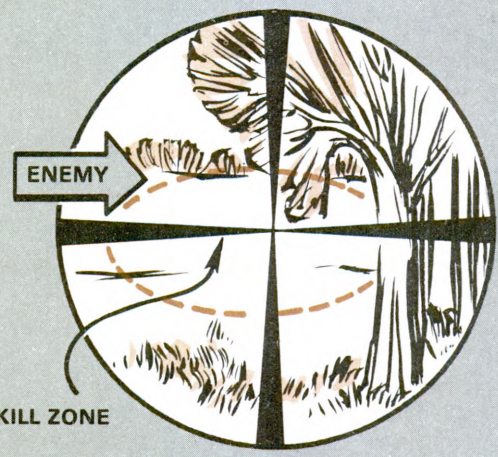


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- The kill zone is large enough to permit the Dragon gunner to acquire, fire, track, and hit the target vehicle. Generally, if the gunner looks through his sights at the kill zone and there are no obstructions in the field of view, the kill zone is large enough.

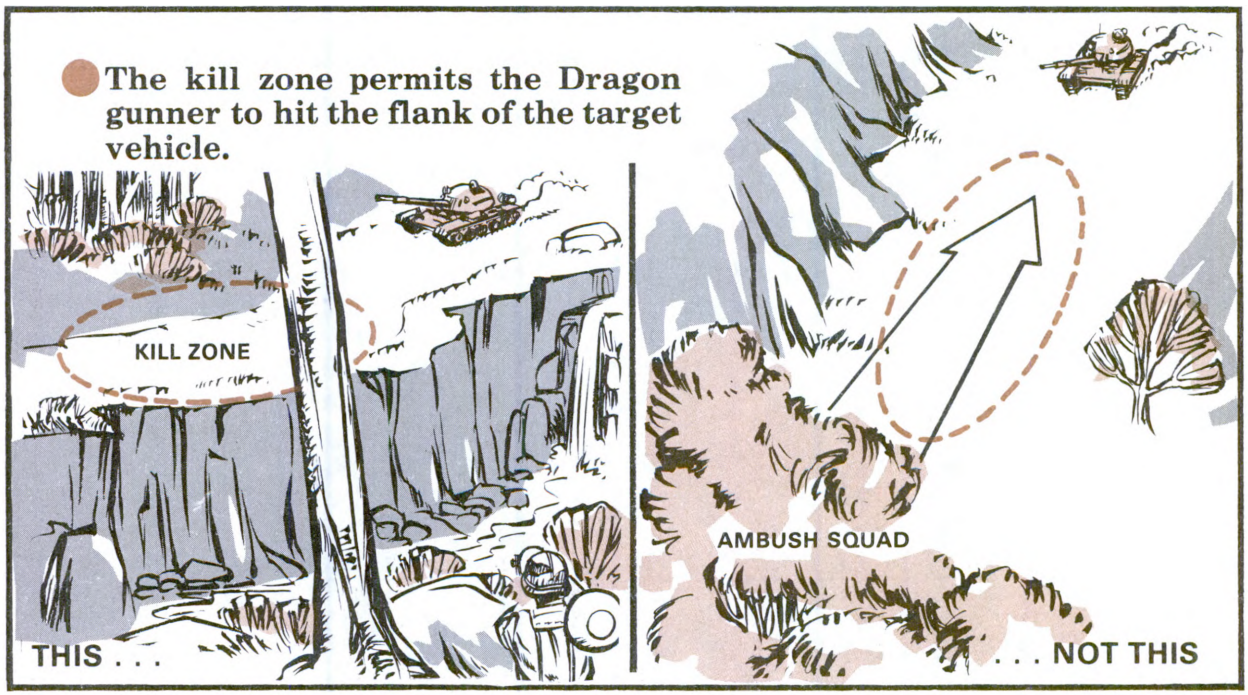


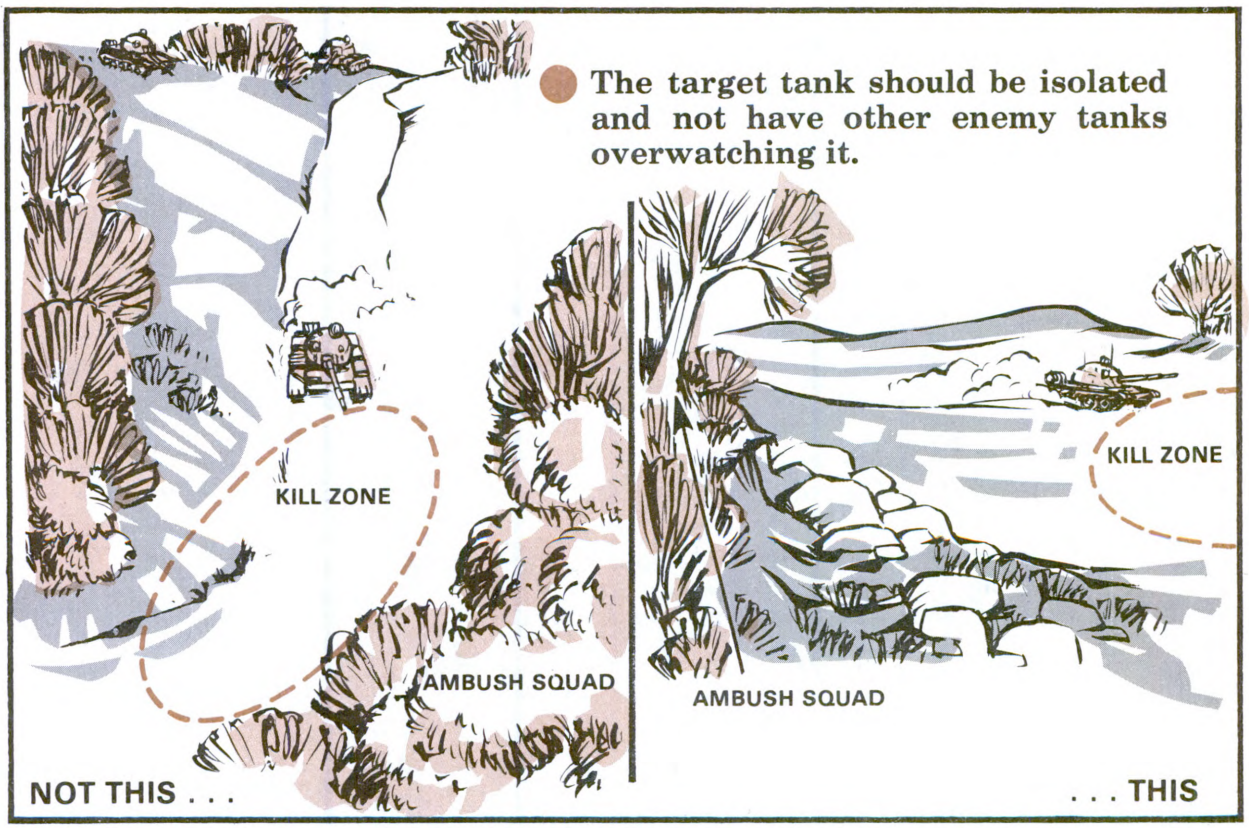
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HAVING SELECTED A KILL ZONE, THE SQUAD LEADER SELECTS A FIRING POSITION FOR THE SQUAD. A GOOD FIRING POSITION HAS:

- **Good field of fire into the kill zone.**
- **Cover and concealment.**
- **An obstacle between it and the kill zone.**
- **Covered and concealed withdrawal routes for the squad.**

SET UP THE AMBUSH

After choosing the kill zone and the location of the squad, the squad leader positions his men and equipment.

The **SUPPORT/SECURITY TEAM** is positioned first in order to immediately establish security. Especially important is security to both flanks. These elements may have to be repositioned after the armor killer team sets up, but when occupying an ambush site, the leader must quickly put out security elements.

As soon as the ambush site is secured, the **ARMOR KILLER TEAM** sets up so that it can cover the kill zone. The squad leader and the Dragon gunner select the exact firing position. Once the Dragon is sited, the machinegun is positioned where it can cover the kill zone.

When the squad is mounted, the **CARRIER TEAM** positions itself hull-down near the Dragon so that the cal. 50 machinegun can shoot into the kill zone.

As time permits, the squad improves the ambush.

- **Individual positions are prepared and improved.**
- **Claymore mines, explosives, or smoke pots can be placed on fake firing positions and rigged for remote firing. These will deceive the enemy as to the location and size of the ambush force and confuse him.**
- **Mechanically detonated mines or shaped charges can be deployed in the kill zone.**
- **If the squad leader is sure that the enemy cannot see the impact, he can call for check rounds from whatever indirect fire unit(s) is supporting him. In most cases he will not have a FO with him, so the squad leader calls for fire through the FO attached to his platoon or calls it in himself.**
- **Conduct rehearsals so that each man knows his job before, during, and after the ambush.**

EXECUTE THE AMBUSH

The squad leader positions himself near the Dragon gunner. When enemy armor enters the kill zone, the squad leader selects the target and springs the ambush by telling the Dragon gunner at which target and when to fire.

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The rest of the squad opens fire when the Dragon detonates in the kill zone. Ideally, indirect fire begins falling in the kill zone immediately after the Dragon detonates. If the kill zone is within range, each man in the squad (except the Dragon gunner and machinegun gunners) fire a LAW. The machinegun gunner fires into the kill zone until his fire is marked as the squad begins to disengage.

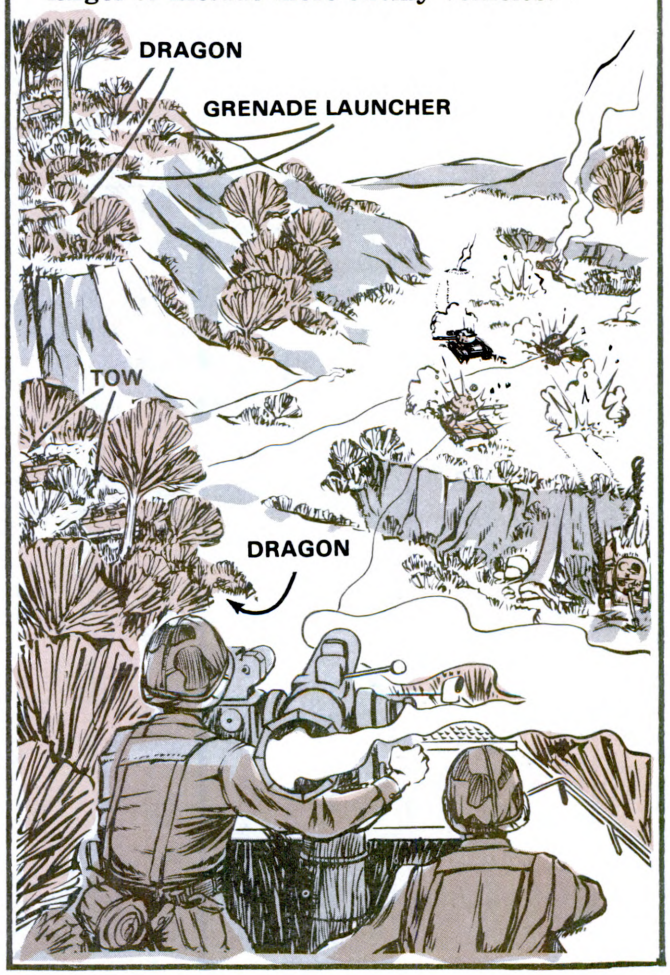
WITHDRAW THE SQUAD

Because of the speed with which the remaining enemy armored vehicles may react to the ambush and the responsiveness of enemy artillery, the squad must be able to spring the ambush, break contact, and get out of the area quickly. When mounted enemy infantry approaches the kill zone of the armor ambush, treat the carriers like light tanks. Let them get close, then destroy them one at a time. If mounted infantry is mixed with tanks, the tanks should be the target for the Dragons. The enemy personnel carriers should be hit with LAWs, 40-mm HEDP rounds, and automatic weapons after the Dragon(s) is fired.

If enemy dismounted infantry precedes the armored vehicles into the kill zones, the squad leader must decide if they pose a threat to the ambush. If they can outflank the ambush site before the enemy armor can be hit, he may decide to withdraw without making contact and try to set up another ambush along the avenues of approach somewhere else. If the enemy infantry is an immediate threat to the squad or appears to be ready to find or trip any mechanical devices, initiate the ambush with automatic weapons. All action is exactly as planned and rehearsed, except that the armor defeating weapons are not fired.

PLATOON AND COMPANY TEAM ANTIARMOR AMBUSHES

A platoon and larger units can also conduct armor ambushes. The aim of this type ambush is to destroy an entire enemy unit. It is used against enemy advance guard and reconnaissance units. The ambushing force lets the enemy approach close enough to the ambush to destroy the enemy with massed fire. The platoon can conduct such an ambush by itself or as a part of a larger force. The fundamentals of other ambushes apply. For such an ambush, the platoon can be reinforced with TOWs, and the kill zone is larger to include more enemy vehicles.



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THE KEYS TO SUCCESSFUL AMBUSHES ARE--

- **Security.**
- **A restricted maneuver area for the enemy in the kill zone.**
- **Good fields of fire.**
- **Withdrawal routes for the ambush force.**
- **Use of fire from an unexpected direction.**
- **Cover and concealment for the ambushing force.**
- **Above all, SURPRISE.**

When a team is delaying along several primary avenues of approach, several ambushes might be planned and prepared. The team moves into the appropriate one after discovering the enemy's approach.

Besides achieving highly favorable kill-ratios in favor of the delaying force, the use of ambushes, or a series of ambushes, will eventually force the enemy to keep his leading elements fully deployed and thus greatly reduce their rate of movement.

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Section III.
OBSERVATION POSTS

GENERAL

Observation posts (OPs) are positions occupied to observe (and listen to) enemy activity within a particular sector, and from which you provide warning of an enemy approach. Normally, in a defense position a platoon leader will position one OP to provide local security for his platoon. This OP consists of two to four men and is within small arms supporting range of the squad.

The mechanized infantry squad leader can also have the mission of setting up two OPs using all of the squad members, or using the entire squad to occupy one OP. This type mission is often received on the battlefield when the mechanized platoon must screen or secure a wide area.

SELECTING THE LOCATION OF THE OP

A squad is given the general location of its OP by the platoon leader. The squad leader selects the exact position.

He looks for positions that:

- Allow good observation of the desired area or sector. Ideally, an OP has fields of observation overlapping those of adjacent OPs.
- Provide cover and concealment. Good observation of the sector may require you to accept less cover and concealment and require you to selectively clear fields of observation.
- Have covered and concealed routes to and from the position. You should be able to get into and leave the OP without being seen.

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- Don't attract attention. Don't select a position such as a water tower, an isolated grove of trees, a lone building or tree, or an abandoned vehicle that naturally draws the enemy's attention.

- Don't skyline the observers. Avoid hilltops; you are usually better off farther down the slope on a flank of the hill as long as covered withdrawal routes are available.

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MANNING THE OP

At least two men are needed to man an OP, and three or four may be needed if it must stay out for a long time. One man observes while the other provides local security, and reports information observed. The observer and recorder switch jobs every 20-30 minutes because the efficiency of an observer decreases rapidly after that time.

An OP should have binoculars to aid in observation and identification of enemy in the sector. It should also have a compass to get azimuth sightings. It should have a map with TRPs plotted thereon so its men can call in indirect fire.

At least one man in the OP should know how to call for and adjust indirect fire.

SETTING UP AN OP FOR LOCAL SECURITY

The squad leader takes out the men who are to man the OP and shows them where to set up. He must also tell them when and how to report, if and when they should fire at the enemy, and how to get back to the squad when he tells them to withdraw.

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OPs usually don't have wire or radio communication because the squad doesn't have telephones or radios to give them. This means that when they have something to report one man must come back to the squad leader with the information while the other man (men) continues to observe.

- If the OP has a telephone, conceal the wire in grass and other vegetation. If in sand or snow, cover it and sweep the surface with branches. Once the wire is put in, it may be cut by indirect fire or the enemy. Never send one man to check a wire line. If you have to check it, send two men--one man to find the cut and another to overwatch him. Often the enemy will try to take prisoners by cutting a line and lying in wait.

- If they are available, radios are given to the OP to supplement wire communication.

- OPs should shoot at the enemy only in self-defense or to cover their withdrawal. Their mission is to observe and report; they are isolated, and they do not have enough firepower to defeat even a small enemy force.

- An OP withdraws only on order. The platoon leader will tell them when to pull back.

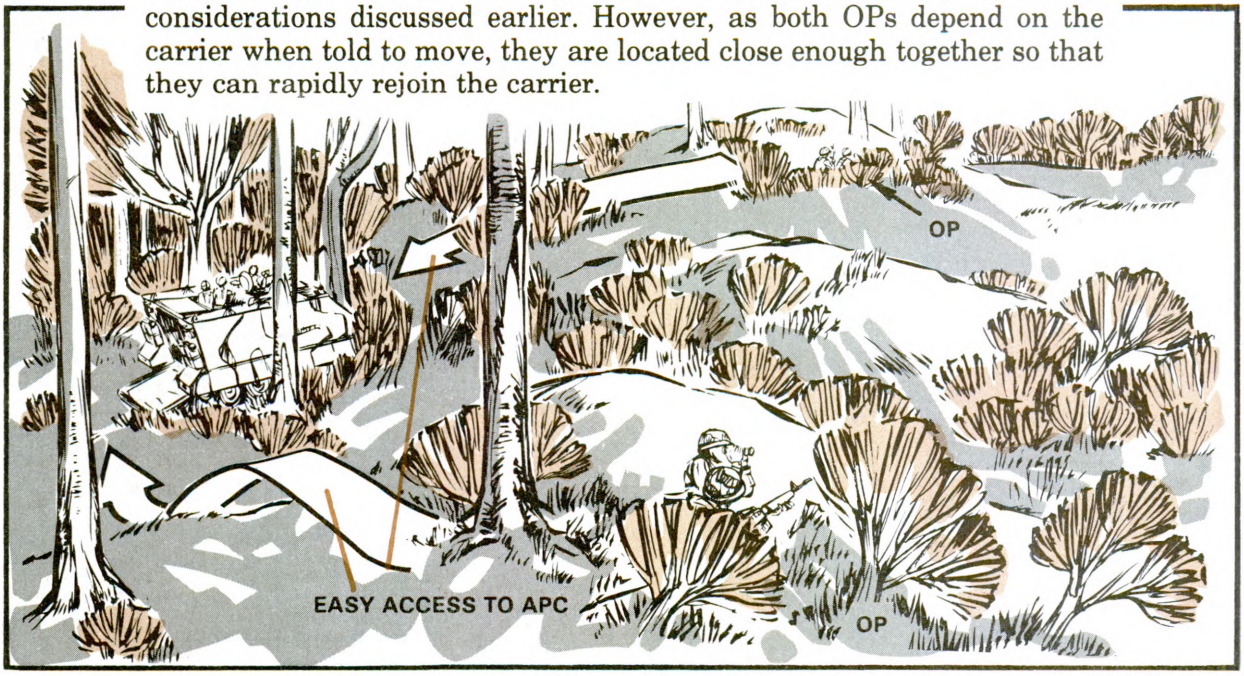
- Fighting positions are used for OPs.

OTHER OPs

When the mechanized squad organizes into two OPs, the squad leader controls one OP, and a team leader controls the other. The carrier is located with the squad leader and is normally in a hide position behind his OP. In this case, the carrier team consists of the driver and TL/gunner and the maneuver team organizes into two elements. The squad leader dismounts

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the carrier radio for his OP and gives the squad radio (PRC-88) to the team leader of the second OP. The OPs are positioned using the same considerations discussed earlier. However, as both OPs depend on the carrier when told to move, they are located close enough together so that they can rapidly rejoin the carrier.



The mechanized squad can also occupy one OP using the entire squad. Squad-size OPs will be frequently established when the platoon has a mission to screen the flank of a larger force or to secure a wide area. The squad leader is told where to locate the OP and is instructed on when and how to report, whether or not he is to shoot any target, and how he is to rejoin the platoon.

The way the squad leader occupies this type OP depends on how long he expects to be there, cover and concealment at the location, and the instructions he gets from the platoon leader. Based on these things he can:

- Move his carrier into a hull-down or hide position (depending on the terrain), dismount the maneuver team, and place his men in two-man positions from which they can observe. With this method the two-man positions are spread out to allow the squad to observe a larger area.

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OR

- Move the carrier into a hull-down position, dismount local security to each flank, and observe from the carrier.

OR

- Move the carrier into a hull-down position, remain mounted, and observe from the carrier.

In a built-up area, OPs are usually outside and forward of the buildings so you can see and hear better. You may be given a night vision device for use in your OP. The enemy employs infiltrators against your defense at night, so a series of competent OPs is your best security. OPs backed up by alert troops equipped with night vision devices, and by snipers, can counter an infiltration effort.

HOW TO VISUALLY SEARCH (EYEBALL) TERRAIN

Visually search terrain in two steps:

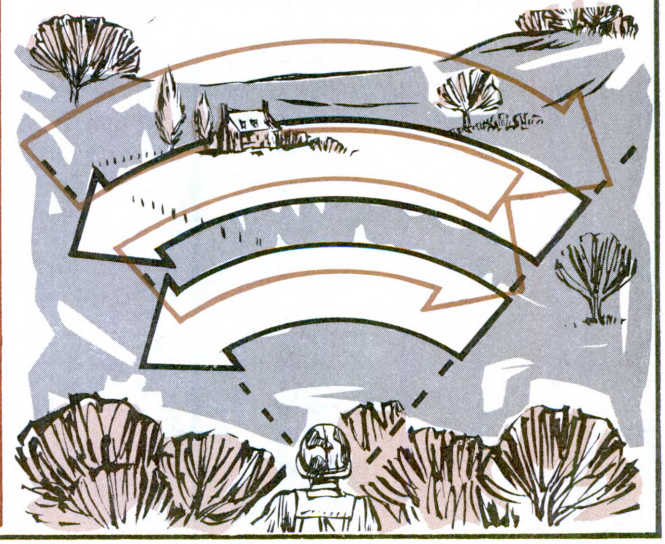
Step 1.

Make a quick, overall search for obvious targets and unnatural colors, outline, or movement.

- **Look straight down the center of the sector you are watching, starting from just in front of your position.**
- **Raise your eyes quickly to the maximum distance you wish to observe.**
- **If the sector is wide, subdivide it and search each subsector from "near to far."**

Step 2.

Next, cover all areas, first searching the ground 50 meters deep, right to left. Then search in 50-meter overlapping strips, back and forth across the entire area. When you see a suspicious spot, search it thoroughly.

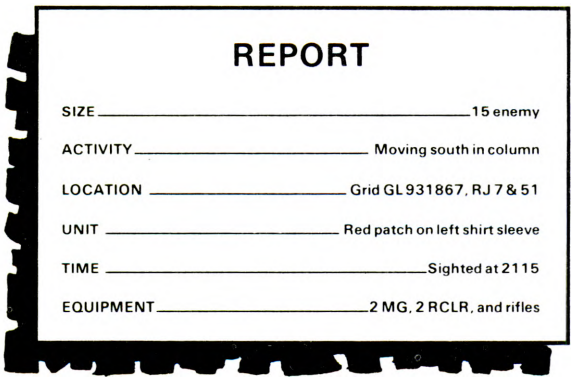


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WHAT TO REPORT

Report all information quickly, accurately, and completely. Make sure that the information which you report answers the questions **WHO, WHAT, WHERE, and WHEN.**

Example of Report



When observing, you will find it helpful to take notes and draw a sketch. The figure to the right depicts a preprinted form which is sometimes used to report an obsevation by members of an OP.

- ***SIZE.*** **The size of the enemy unit is the number of troops you see. For example, report 10 enemy infantrymen, not an infantry squad, or three enemy tanks, not an enemy tank platoon.**

- ***ACTIVITY.*** **Report what you saw the enemy doing. For example, "emplacing antitank mines in the road."**

- ***LOCATION.*** **Report where you saw the enemy. If you have a map, report the coordinates, e.g., GL 874461. If you don't have a map, relate the location to some key terrain feature; for example, on the Hann Road 300 meters south of the Kell River Bridge.**

- ***UNIT.*** **The unit to which an enemy soldier belongs may be difficult to determine. Report bumper markings on vehicles. Some countries have partiuclar uniforms, headgear, and colored tabs on uniforms which identify the type unit. The unit's action may indicate its type, or the kind of equipment observed may be peculiar to a certain type of unit. For example, a BRDM may indicate a reconnaissance unit.**

- ***TIME.*** **Report the time when you saw the enemy activity, not the time you report it.**

- ***EQUIPMENT.*** **Report all of the equipment the enemy is wearing or using. If you don't recognize an item of equipment or a type of vehicle, sketch it and submit the sketch with your report.**

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EXACTNESS COUNTS; YOU ARE THE MOST IMPORTANT INTELLIGENCE GATHERING AGENCY ON THE BATTLEFIELD.

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NOTES

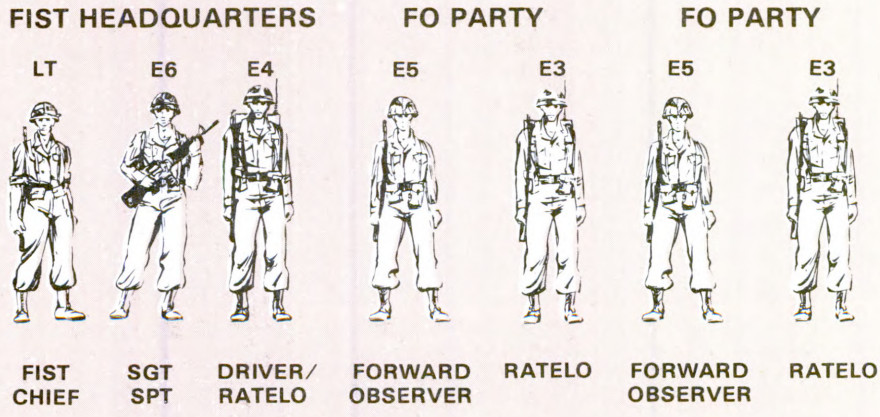
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CHAPTER 7
COMBAT SUPPORT

Combat support consists of the fire of mortars, field artillery, TOWs, attack helicopters, and USAF tactical aircraft; as well s other support by engineers, signal, military intelligence, and military police units. Most combat support is requested and arranged by the team commander. Nevertheless, prompt use of such support, especially fire support, by the platoon leader is often the difference between success and failure.

A platoon leader normally calls for mortar and artillery fire through the forward observers (FO) attached to his platoon. Forward observers are attached to the platoon from the fire support team (FIST) that is attached to the company team.

The FIST that works with a mechanized infantry company is organized into a headquarters and two forward observer parties.



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Mechanized infantry platoons normally receive an FO party. This party rides with the platoon leader and is capable of calling for and adjusting mortars, artillery, tactical aircraft, and naval gunfire. The FIST headquarters travels in its own M113A1 and moves with the company team commander.

There are only two FO parties in each FIST. That means that there may be times when a platoon will not have an FO and the platoon leader will have to call for and adjust indirect fire. In the absence of an FO, he can request fire through the team commander by entering the supporting unit's radio net, or they may enter the platoon or team radio net. Likewise, the platoon leader may direct attack helicopter, tank, and TOW fire at the enemy. The ways to direct supporting fire at the enemy are covered in appendix N.

This chapter will cover the techniques platoon leaders use to employ fire support and to control fire. It prescribes techniques for employing TOWs and tells what other combat support elements can do for the platoon.

PRINCIPLES FOR USING FIRE

USE EACH WEAPON IN ITS BEST ROLE

Each weapon has certain capabilities and limitations and should be used in roles which best suit it and which allow it to complement other weapons.

The ***platoon's own weapons*** give the most immediate fire support available to the platoon. Platoon M60 machineguns are good for providing close-in suppression, for killing infantry, and forcing armor vehicle crews to button up. Cal .50 machineguns can do what M60 machineguns can do and can give good intermediate and long-range suppression. Dragons provide medium range AT fire. LAWs and grenade launchers give a large volume of close antitank fire. The platoon leader complements the fire of the platoon's organic weapons with the supporting fire.

Mortars provide the most responsive indirect fire support available to the platoon as they belong to the team or task force (TF). They can--

- Destroy infantry in the open, infantry and key weapons in fighting positions without overhead cover (using VT fuzes), and infantry and key weapons in positions with light overhead cover.
- Suppress protected enemy positions and armored vehicles.

  Shoot WP to destroy enemy positions or to hide (screen) the platoon. Provide illumination.
- Hit enemy on reverse slopes, in gullies, ditches, built-up areas, and other defiladed areas.

Despite these advantages, it is often better to use other forms of support because of the--

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- Difficulty of resupplying mortars.
- The comparatively less killing power of mortars compared to artillery.

Field Artillery can provide indirect fires to suppress, neutralize or destroy enemy targets. In addition to the same capabilities as mortars mentioned above, FA, because of its mass fire, can:

- destroy enemy in field fortification
- damage or destroy armored vehicles
- damage tanks
- provide continuous battlefield illumination.
- provide WP and HC to provide smoke screen
- engage enemy at greater range and with greater volume of fire.

Most field artillery fires supporting infantry platoons is initiated at co/team level by the chief Fire Support Team (FIST) who is a field artillery lieutenant or by higher fire support coordinator (FSCOORD). The platoon normally requests fire support through its platoon FO. As a member of the FIST, he will know all the required call-signs, frequencies and procedures.

Tanks carry a variety of rounds and have a greater basic load than TOWs. Unlike TOWs, their accuracy decreases as range increases so it may be necessary to shoot more tank fire at a distant tank or use TOWs. They can suppress an area target for a limited time using their main guns and their machineguns. Tanks can shoot almost instantaneous fire at an enemy position. Even under the most favorable circumstances, indirect fire will take 1 to 2 minutes. Tanks can fire during this critical period of time. Tanks can also provide searchlight illumination with both visible and invisible light.

TOWs and missile firing tanks (M60A2 and M551s) are highly accurate out to 3000 meters. They should only be used against armored vehicles or important targets because a limited basic load is carried.

Attack helicopters can attack moving enemy armor with TOW missiles. Although not their best mission, they can also use small rockets, machineguns, and cannon fire to provide limited suppression.

Tac air ca deliver large amounts of destructive fire on targets. However, it is less responsive than other types.

EMPLOY FIRES TO COMPLEMENT EACH OTHER

Use firepower so that there is no interference with other elements delivering fire. An example of interference is that of using smoke on enemy tanks reducing the ability of Dragons to see and hit those tanks.

DESTROY OR SUPPRESS MOST DANGEROUS TARGETS FIRST

Give target priority to those enemy weapons and troops which present the greatest danger to your unit and its mission.

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SHOOT FIRST

The force that shoots first usually wins. Don't let the enemy get the first shot. Plan fire on known or suspected enemy locations or avenues of approach. Have some weapons always in position to shoot as soon as the enemy is discovered.

START THE FIGHT WITH MASSED FIRE WHEN POSSIBLE

Massed surprise fire hurts the enemy most. For example, a "battalion one" (all the guns of an artillery battalion firing simultaneously at a target) gets better results than a "battery three" (one battery firing three successive volleys), even though the number of rounds is the same. This is because the enemy has less time to take cover when the entire battalion is fired at once.

KEEP PLANS SIMPLE

Over-complicated plans make the delivery of fire more difficult to control and less efficient. A simple plan that is understood by all is far better than a complicated one.

AVOID RESTRICTIVE FIRE

The objective of fire planning and control is the rapid placement of fire on the enemy. Use restrictions only as necessary to protect friendly troops from friendly fire or to optimize that fire on the enemy.

FIRE CONTROL

Fire control measures used by the platoon include target reference points (TRPs), phase lines, nearest-half techniques, priorities of engagement, sectors of fire, patterns of fire, and various restrictive fire measures.

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TARGET/REFERENCE POINTS (TRP)

Target/reference points provide a measure to control, coordinate, and adjust direct fires. A single TRP is nothing more than a location on the ground which is easily recognized. A TRP may be used as a target or as a reference point. For example:

A TRP used as a target,

"ENGAGE THE TANK AT TRP 15." A company team commander may control one of his platoons by using the TRP as a reference point, "You engage enemy tanks between TRP 116 and the river."

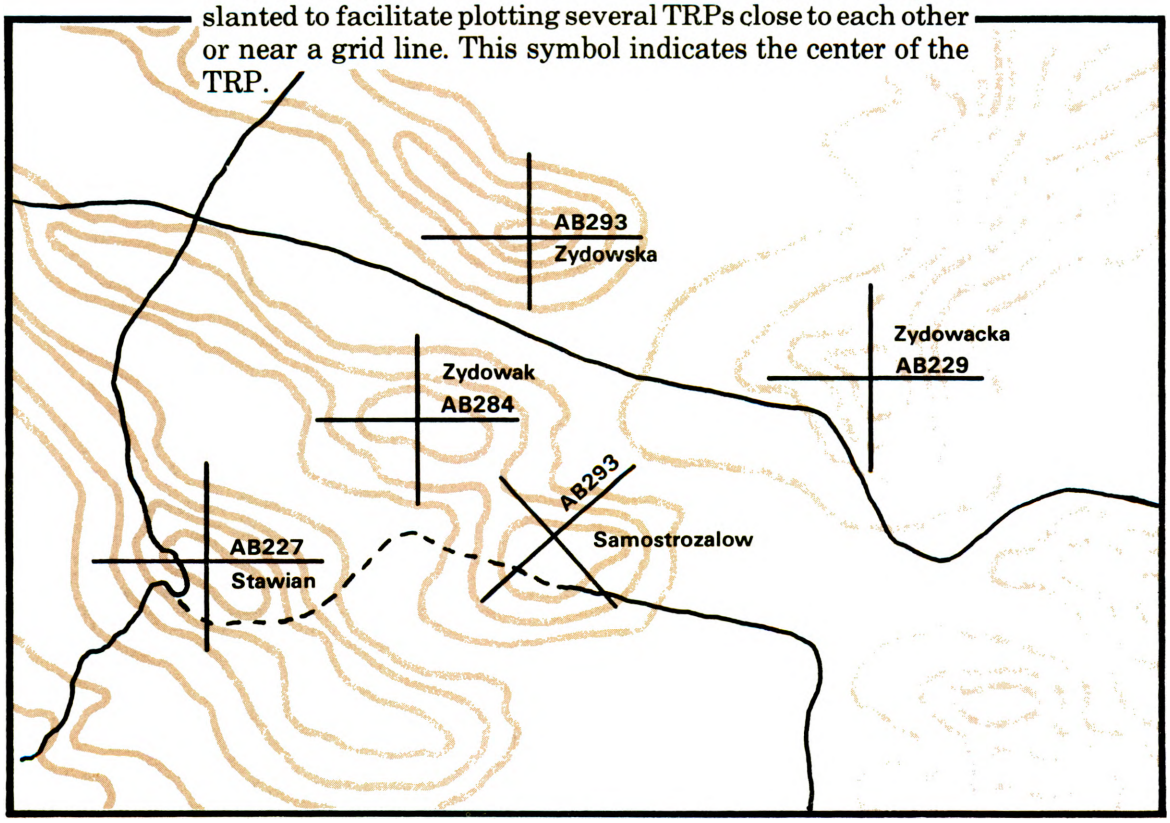
To support the operation the company commander designates the TRPs he requires to control his direct fire weapons. Platoons and squads can designate their own TRPs for use within their units.

TRPs designated by company are usually permanent terrain features such as crossroads, hilltops, bridges, or patches of woods. TRPs of platoon or lower units can also be permanent features, but they may often be such things as a burning tank hull, a large tree, or a barn.

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TRP SYMBOLS

A black cross centered on the target or reference point is used to mark a TRP on an overlay, the symbol may be slanted to facilitate plotting several TRPs close to each other or near a grid line. This symbol indicates the center of the TRP.

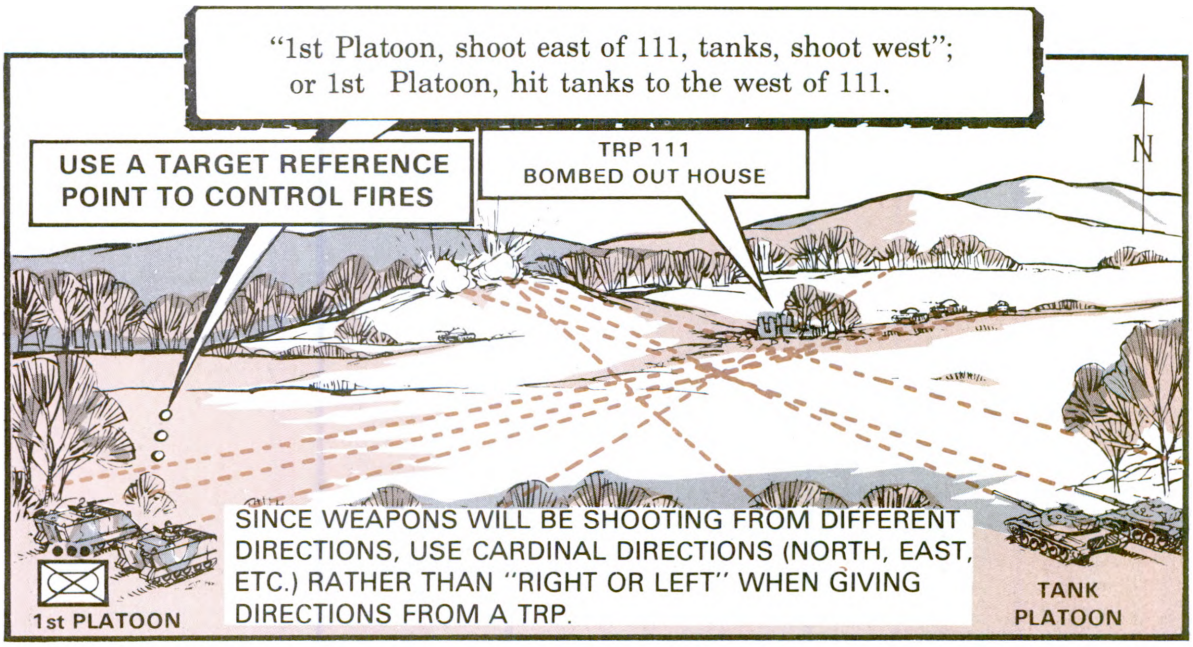


TRPs may be identified by a number, letter, or a short description of the TRP (e.g., dead tree, 116, A5).

The platoon may be given missions in terms of TRPs by the team commander.

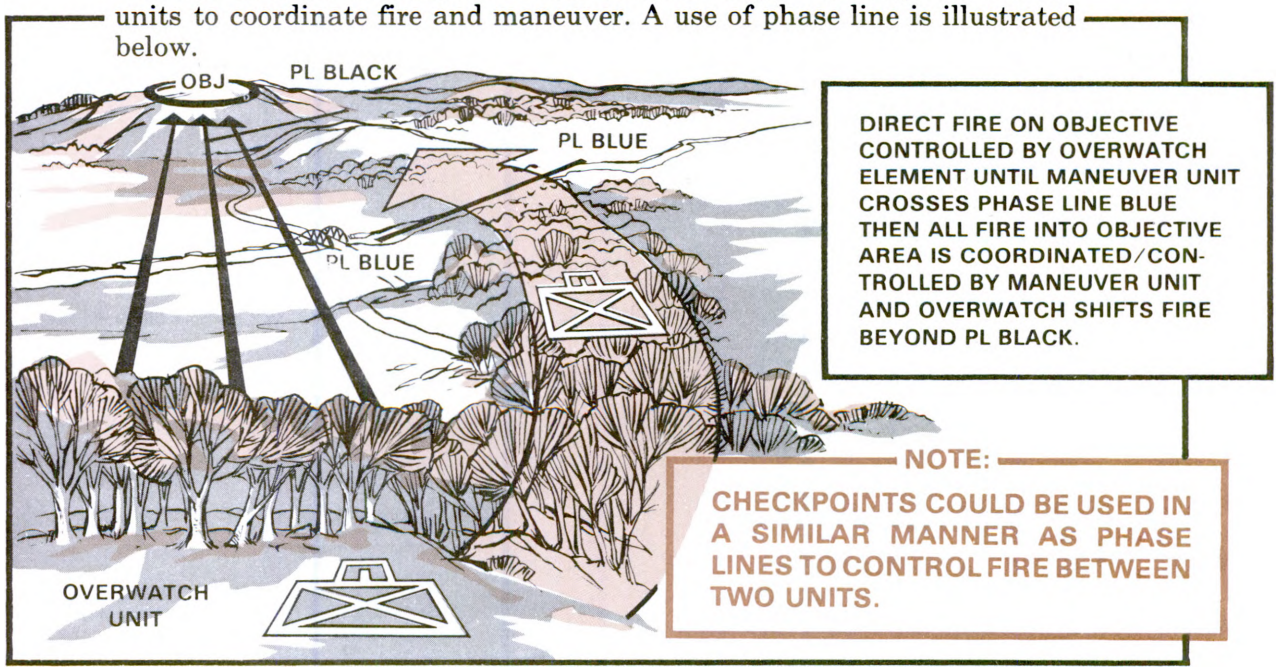
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Here, using the house as a TRP, the team commander might say:



PHASE LINES

Phase lines on identifiable terrain features may be used by one or more units to coordinate fire and maneuver. A use of phase line is illustrated below.

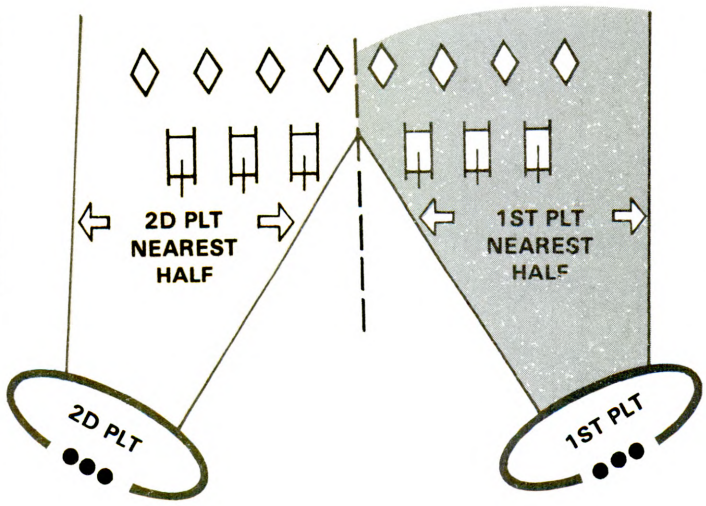


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NEAREST-HALF TECHNIQUE.

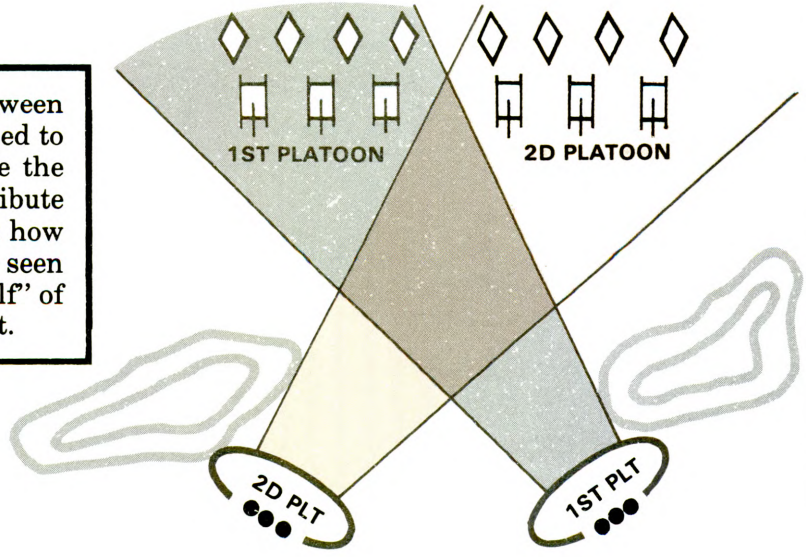
When a wide area target is between two units, a good way to distribute initial fire is the nearest-half technique. Each unit leader estimates how much of a target can be seen and then directs his fire into the "half" of the target nearest his element.

Within his "half" of the target area, each unit leader distributes the fire of his units.



FARTHEST-HALF TECHNIQUE.

When a wide area target is between two units, but they are positioned to get oblique shots, they can use the farthest-half technique to distribute fire. Each unit leader estimates how much of the target area can be seen and directs his fire into the "half" of the target farthest from his unit.



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PRIORITIES OF ENGAGEMENT.

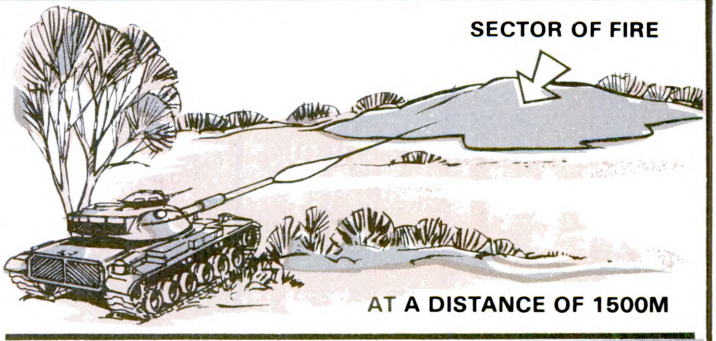
Usually, targets that appear in armor formations are of varying types--tanks, APC, ATGM launchers, and air defense weapons. In any case, fire can be rapidly distributed by assigning each weapon or section a type vehicle to shoot first; for example, "Tanks shoot BMPs, 1st Platoon shoot tanks," or "1st Squad shoot the BMPs, 2d and 3d Squad shoot the tanks," or "Platoon engage tanks, (to the FO) artillery shoot BMPs, mortars suppress overwatch near 279."

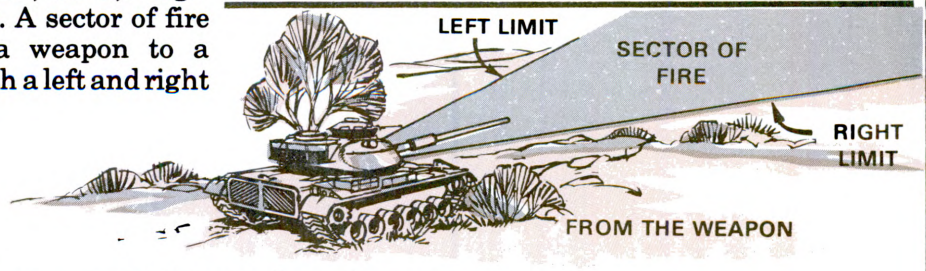
SECTOR OF FIRE.

A sector of fire can be assigned to a unit or to a weapon. A mech platoon may be assigned a sector of fire by its company commander.

The platoon leader normally controls the fire of his squads and key weapons by assigning them sectors of fire. Each weapon should have one primary and one or more secondary sectors of fire. If no targets appear in its primary sector, the unit or weapon may fire in its secondary sector(s). Sectors of fire are assigned so as to attain coverage of an area by observation and fire. A unit may fire outside its sector(s), if necessary.

Sectors of fire may be designated by reference to TRPs. For example, "Cover areas vicinity of 249, 251, and 252," or "Cover from 139 to 142." A sector of fire can also be designated in terms of prominent terrain features; for example, streamlines, roads, hedgegroves, or even trees. A sector of fire may extend from a weapon to a distant boundary with a left and right boundary,





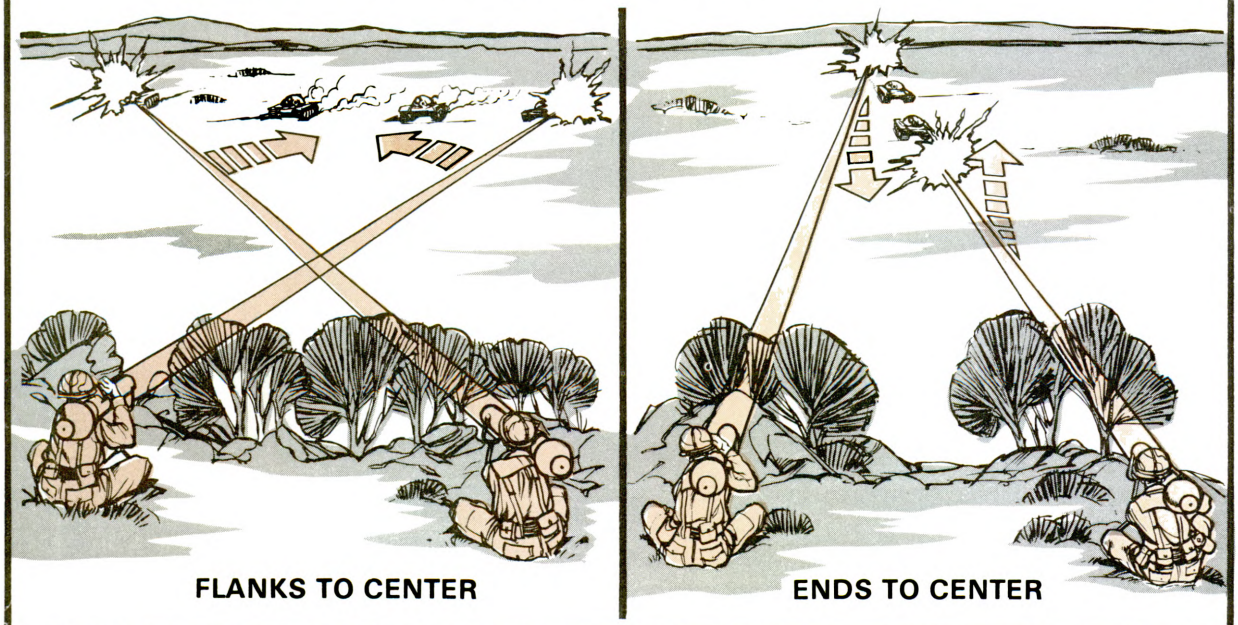
or it may be an area some distance from the weapon or unit.

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Every subordinate unit and weapon crew should immediately report its inability to hit any assigned target or any part of its sector. They also report any areas other than those assigned which they can cover. If coverage can be attained by a short move to a supplementary position, this is also reported.

PATTERNS OF FIRE

Patterns of fire are used to control machinegun and ATGM fire. The concept is to start shooting at opposite ends or flanks of the enemy formation or area to be covered and work toward the center.



FLANKS TO CENTER

ENDS TO CENTER

RESTRICTIVE FIRE MEASURES

Restrictive fire measures may be designated by the team commander to keep the platoon from shooting at friendly forces or to order to limit fire to that which supports the scheme of maneuver. These restrictions normally are designated areas into which the platoon may not fire, or an order to the platoon to hold its fire until told to fire by the team commander.

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POSITIONING TOWS

Infrequently a TOW section (two TOWs) may be attached to a platoon. When it is, the platoon leader gives guidance as to the location of TOW positions and sectors of fire. He must see that attached TOWs are always in position to support the platoon. He normally picks general areas and lets the section leaders pick the exact positions for the TOWs. TOW positions should have--

COVER AND CONCEALMENT

Protecting TOW crews from enemy fire is critical because each gunner must track the entire flight of his missile to its target. The missile time of flight, to maximum range (3,000 meters), is about 16 seconds. Any enemy fire which causes the gunner to flinch or take his eye off the target while the missile is in flight will abort the missile. This points out the value of concealment in positioning AGTMs.

When a TOW is in a hide position, an observer from the squad stays at a firing position or a nearby point from which he can best detect approaching targets. When a target appears, he calls the TOW forward and points it out to the gunner.



HIDE POSITION

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TOW STANDOFF

Beyond 2,000 meters, the effectiveness of a tank gun drops off sharply, whereas the TOW's effectiveness remains high, especially against stationary targets. Thus, TOW has a significant advantage against the tank at ranges beyond 2,000 meters. When positioning TOW, exploit this advantage.

FLANKING FIRE

Shoot from the target's flank--from a terrain-masked position. Avoid frontal fire except at near maximum range. Flanking fire is vital at ranges less than 1,500-2,000 meters, ranges at which an enemy tank has a better than 50/50 chance of first-round hit. Firing from terrain-masked positions makes it harder for the enemy to detect and suppress positions. Further, the enemy's tanks will have their guns and observation oriented to their front, making it difficult for them to detect and retrace ATGMs launched from their flanks.

SURPRISE FIRE

Standoff, camouflage, terrain mask, and proper positioning--all contribute to the achievement of surprise fire.

DISPERSION

To reduce their vulnerability to enemy fire, TOWs should be dispersed. The distance should be about 300 meters between TOWs, so that no two can be suppressed by a single volley from one enemy battery. Often this degree of dispersion may not be practical, because of terrain restrictions or the difficulty in controlling the fire of a section. Common sense and proper use of available terrain will govern the trade-off.

MUTUAL SUPPORT

Mutual support is the help two weapons/units give one another. In general, TOWs should never be employed singly. A TOW section is used to cover a single sector of fire. Another aspect of mutual support is that TOWs should be positioned where they gain protection and security from the positioning of the infantry when necessary.

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PREPARATION OF POSITIONS

Firing positions have unobstructed fields of fire with minimum dead space, mask clearance, and clear backblast areas.

EMPLOYING SMOKE

when used correctly, smoke can reduce the enemy's effectiveness both in the daytime and at night. Smoke, combined with other suppressive fire, provides increased opportunities for maneuver without great losses. Smoke can reduce the enemy's ability to deliver effective fire (especially AGTM fire), hamper his maneuver, and deny him information of our positions and maneuver. Use smoke to obscure enemy vision and to screen your maneuver in the offense, defense, and retrograde.

When using smoke to obscure enemy vision, both within and beyond his position, place it on or near the enemy. When using it as a screen, place it between the enemy and your troops so the enemy can't see far beyond his own position.

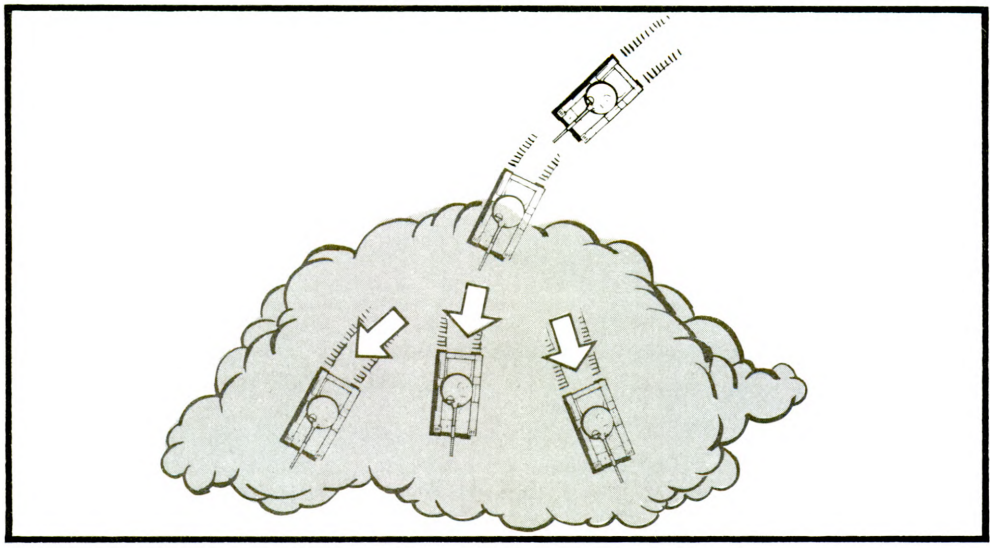
USE SMOKE TO

- obscure artillery OPs; reduce the accuracy of enemy observed fire.
- obscure enemy direct fire weapons to include guided missiles to reduce their effectiveness.
- hide your movement along exposed routes.
- slow enemy vehicles to blackout speeds.
- increase enemy command and control problems (screen his visual signals and ncrease his radio traffic).
- thwart enemy night observation devices and reduce the capability of most IR devices.

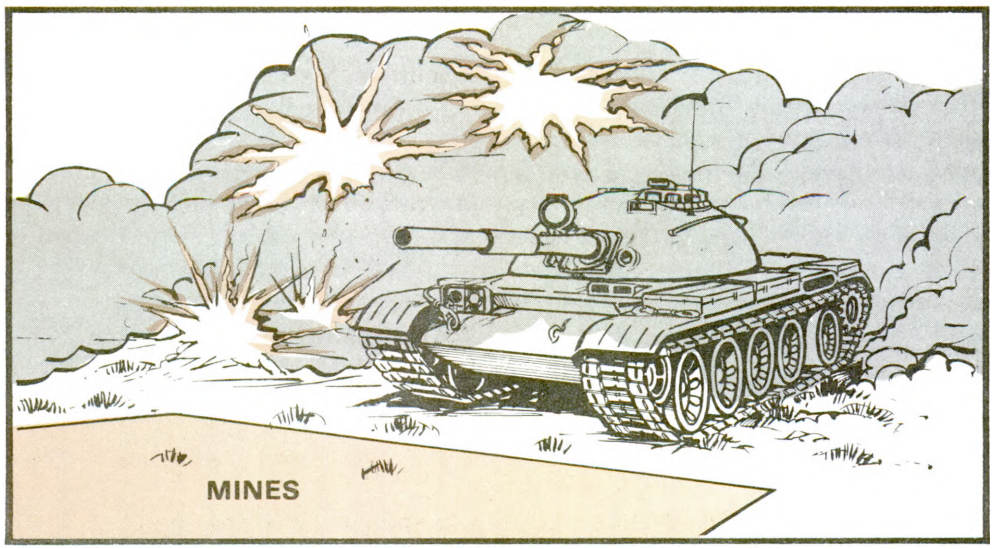
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The effect of smoke is magnified when you mix the smoke rounds with HE or VT rounds. **For example--**

- Fire smoke and VT on the enemy when he deploys from column to line formation. The VT will keep him buttoned up. The smoke will cause confusion.



- Fire smoke, VT, and HE just before the enemy enters a minefield. He may not realize he is in the minefield until it's too late.



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DO NOT NEGLECT THE USE OF SMOKE AT NIGHT. ENEMY DIRECT FIRE WEAPONS, SUCH AS THE SAGGER, ARE EQUIPPED WITH NIGHT VISION DEVICES. DARKNESS CAN BRING ON A FALSE SENSE OF SECURITY, WHICH CAN BE FATAL.

EMPLOYMENT CONSIDERATIONS

Before you employ smoke, consider that--

- Smoke diminishes the ability of your troops to hit their targets.
- Smoke may affect other friendly units. Three or four rounds of HC may be effective downwind 1,100 meters or more.
- It takes time to build up enough smoke to obscure. Therefore, HE provides more immediate suppression but it doesn't last.
- Inaccurately placed smoke may still obscure vision, whereas inaccurately placed HE probably will not.
- WP rounds give quicker smoke, but HC rounds last much longer.
- HC is a cannister round and will roll downhill.
- Smoke rounds fired on water, deep mud, or deep snow usually will not function properly.
- Smoke shells fired on dry vegetation will start fires.
- Smoke flows downhill and to low spots on windless days.

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- The point at which to place smoke depends primarily on the wind. Usually, it should impact 100 meters short and 100 meters upwind of the enemy.

SMOKE, AMMUNITION, AND DELIVERY MEANS AVAILABLE

Delivery System	Type Round	Time to Build Effective Smoke	Average Burning Time	Average Obscuration Length (Meters) Per Round — Wind Direction		
				Cross	Quartering	Head/Tail
81-mm	WP	1/2 min	1 min	100	60	40
107-mm	WP	1/2 min	1 min	200	80	40
155-mm	WP	1/2 min	1-1 1/2 min	100	75	50
	HC	1-1 1/2 min	4 min	350	250	75

The commander must also know the effect that smoke has on his ability to see and hit the enemy.

SMOKE USED WITHOUT SUFFICIENT THOUGHT AND PLANNING MAY REDUCE YOUR EFFECTIVENESS MORE THAN THE ENEMY'S.

ENGINEER SUPPORT

There are no engineers organic to the company team. For tasks which require the unique construction or destruction capability of engineers, they are provided by the battalion task force or brigade. When this is done, one or more squads of engineers may be attached to or placed in direct support of the company team.

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One of the most important things engineers can do for combat units is build bridges. Short gaps can be spanned using the armored vehicle launched bridge (AVLB). Bridges longer than 60 feet must be built by engineers from the divisional engineer battalion. Engineers can also improve APC swim sites, create or remove obstacles, aid in the contruction of fortified positions and bunkers, and install minefields.

GROUND SURVEILLANCE RADAR (GSR)

Radar sets from the Division Combat Intelligence Company may be positioned in the platoon area. The GSR team leader will have been assigned a specific area to scan, and will select the position for his set.

Although the GSR team is usually not working for the platoon or the company team, there are some considerations for the platoon leader when radar is operating in his area.

Radar can detect vehicles and troops at much greater ranges than the platoon can see or hear. Therefore, establish communications with the GSR team leader so that he can tell you if he detects enemy movement. Tell the GSR team leader the location of OPs, patrols, ambushes, and positions.

REDEYE TEAMS

Redeye is the primary air defense weapon in a mechanized infantry battalion. The range of the Redeye missile is approximately 3000 meters. Five Redeye teams of two men with six missiles each are found in a battalion. These teams move about the battlefield with the infantry. They do not have their own APCs so they must ride with the maneuver units in the battalion. If a Redeye team is assigned to move with a platoon, the platoon leader must consider that:

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- The team must carry its six missiles. This may require cross-loading of platoon personnel and equipment to make room in one of the carriers.

- Each Redeye team has an early warning device that gives advance notice of enemy aircraft in the area. This can serve to warn the platoon as well as the Redeye team.

- Redeye has a backblast area 13 meters forward of and behind the launcher.

- Redeye is primarily a tail-chase weapon and has a limited head-on capability against jet aircraft.

- A smoke trail is left by the missile as it flies and it creates smoke and dust when it is fired. This may reveal the location of the weapon

- Redeye gunners must be able to see the target before they can fire.

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CHAPTER 8
COMBAT SERVICE SUPPORT

The platoon will get most of its administrative and logistics support from sources outside the company team. This support is called combat service support. Normally many of the requests for support and resupply are made by the platoon sergeant to the company 1SGT/XO. However, responsibility for platoon combat service support belongs to the platoon leader. Combat service support may provide the platoon with a service such as--

ITEMS SUCH AS--

Weapons.

Vehicles.

Ammunition.

Repair parts.

TECHNICAL ASSISTANCE SUCH AS--

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Normally, procedures for combat service support are specified in unit SOPs. The platoon is normally supported by:

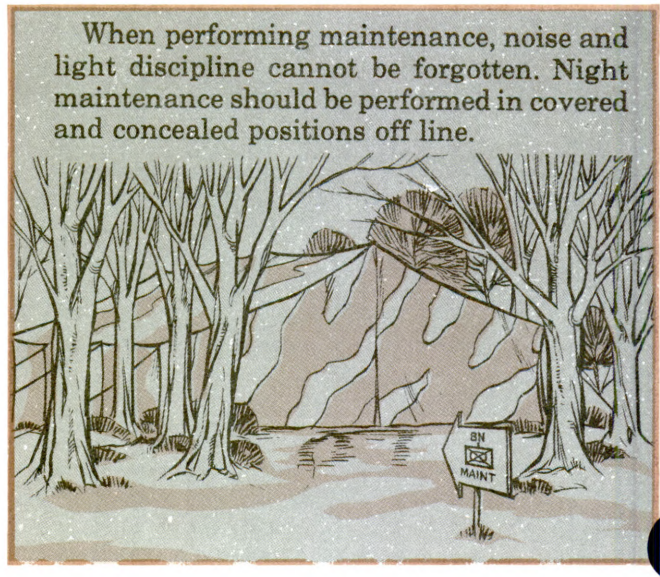
- Ammunition and POL delivery from the battalion transportation section.
- A medical aidman from the battalion medical platoon. At company level, there is an evacuation team of a medical aidman and an ambulance driver with an ambulance.

Combat service support must begin with the actions of the platoon leader, platoon sergeant, and the squad leaders. They must know the status of the maintenance of vehicles; of the supply of rations, ammunition, equipment, and POL in the platoon; and the personal needs of their men. They must do all within their capabilities to improve conditions in these areas and seek assistance through the team commander, team XO, or first sergeant.

MAINTENANCE AND EVACUATION

Good maintenance keeps material in serviceable condition. It includes inspecting, testing, servicing, repairing, requisitioning, recovering, and evacuating. Repair and recovery are accomplished as far forward as possible. When equipment cannot be repaired on site, it is moved only as far as necessary for repair.

Leaders must personally check to insure that equipment is cleaned and lubricated as required; that oil and coolant levels are maintained; and that before, during, and after operation checks are made. Proper warming and cooling of engines are important. Maintenance should be performed using the right manual--not from memory. To insure maintenance is properly performed, leaders must make sure that the proper manuals, lubricants, tools, and cleaning materials are requested, on hand, and used.



When performing maintenance, noise and light discipline cannot be forgotten. Night maintenance should be performed in covered and concealed positions off line.

The platoon leader reports the exact location of disabled vehicles and the type and extent of damage so that team or TF maintenance personnel can pick it up and repair it as rapidly as possible. When a vehicle is disabled in a secure location, normally a two-man crew stays with the APC to bring it or its replacement back. If during defensive or retrograde operations evacuation of equipment is impossible, the equipment is destroyed to prevent use by the enemy.

SUPPLY

Supplies the platoon needs most often are--

- FOOD
- AMMUNITION
- FUEL
- SPARE PARTS

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Maintaining an adequate level of all supplies within the platoon is mainly a matter of timely requests for resupply. If the platoon leader waits for ammunition levels and other basic loads to become very low or out before requesting resupply, then the platoon will not have enough. Resupply and refueling must be accomplished at every opportunity.

Rations. Combat rations are carried by each APC for one or more days depending on the situation. Rations and drinking water are supplied to the company by battalion mess teams. When the situation permits, mess teams may deliver hot meals. When hot meals are being served, feeding is normally accomplished by sending men back to a point to pick up their meal. Men are infiltrated back so that security of the position is always maintained and vehicles always have a crew. During feeding men must stay dispersed.

POL. Refueling is usually done in one of two ways:

- The fuel truck may be taken to the carriers. This method is used when routes are available and the carriers are not under direct observation and fire of the enemy.
- Carriers are moved alternately to centrally located fuel trucks. Use this method when the unit is in contact and most of the carriers must be kept in their fighting positions or when enemy fire can prevent the fuel trucks from moving to the carrier.

Ammunition. As in refueling, there are two ways to do this:

- **If possible, ammunition trucks are taken to platoon positions, or**
- **Ammunition is unloaded at a central point and distributed by platoon carrying parties.**

Repair parts. Repair parts are requested from the team XO or first sergeant.

OTHER SUPPLIES

Medical supplies are provided by the battalion medical platoon, through the medical aid personnel with the company.

Major end items, organizational equipment, and expendables are obtained through the company supply sergeant.

Sundry items--tobacco, toilet articles, candy--are issued with rations.

Maps are provided by the company first sergeant/XO.

The problem of keeping a proper level of equipment in the platoon is a constant problem for the platoon leader. Equipment which is not being used tends to get misplaced or not maintained. It is not ready when needed. Men tend to keep unauthorized equipment, thus making it difficult to carry required equipment.

To prevent these problems the platoon and squad leader must continuously conduct inventories of equipment and be on the lookout for unauthorized equipment. Formal inspections and frequent spot checks must be conducted. Special emphasis should be

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placed on checking equipment which has not been used in a while but which looks important for the next operation (e.g., NBC equipment if there has been no recent enemy chemical or nuclear activity, or drain plugs if the platoon will conduct a river crossing). The most often lost or improperly maintained items are unit equipment such as tools, radiacmeters, designated machineguns, etc. Platoon and squad leaders must make sure every piece of platoon equipment is assigned to some soldier. If losses show up, the reason for the losses must be determined and measures taken to avoid future losses. If someone is responsible for the loss, he should pay for it. If improper platoon procedure is at fault, it should be changed.

PERSONNEL SERVICES AND ADMINISTRATION

The platoon makes recommendations to the team commander for promotion, awards, and disciplinary actions and promptly reports casualties and other losses.

Personnel services. Personnel services--leaves and passes, command information, postal service, religious activities, exchanges, financial service, legal assistance, welfare, special services, and rest and relaxation--are designed to help unit commanders maintain morale. The platoon leader is responsible for having these services fairly and impartially provided to his soldiers.

Graves registration. Collection, identification, safeguarding of personal effects, and evacuation of dead from the battle area are unit responsibilities. Dead are evacuated with their personal effects to a graves registration collection point using available transportation. *PERSONAL EFFECTS FOUND ON THE DEAD WILL BE REMOVED.* Personal effects in unit storage are quickly screened, inventoried, and forwarded to appropriate graves registration elements. Isolated burials and mass burials are performed only when authorized by the company commander.

The platoon aidman gives emergency medical treatment within his capabilities and insures that casualties who need to be evacuated for more treatment are moved promptly and properly prepared for movement.

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CHAPTER 9
COVER, CONCEALMENT, CAMOUFLAGE, AND TARGET ACQUISITION

To survive and win on the modern battlefield, you must fully exploit the terrain.

Proper use of the terrain is the key to success for all tactical operations. This means using COVER and CONCEALMENT. You are responsible for instructing and supervising all members of your unit in how to make the best use of cover and concealment. To supplement natural cover and concealment found on the battlefield, they must be proficient in CAMOUFLAGE.

COVER

COVER IS PROTECTION FROM THE FIRE OF ENEMY WEAPONS.

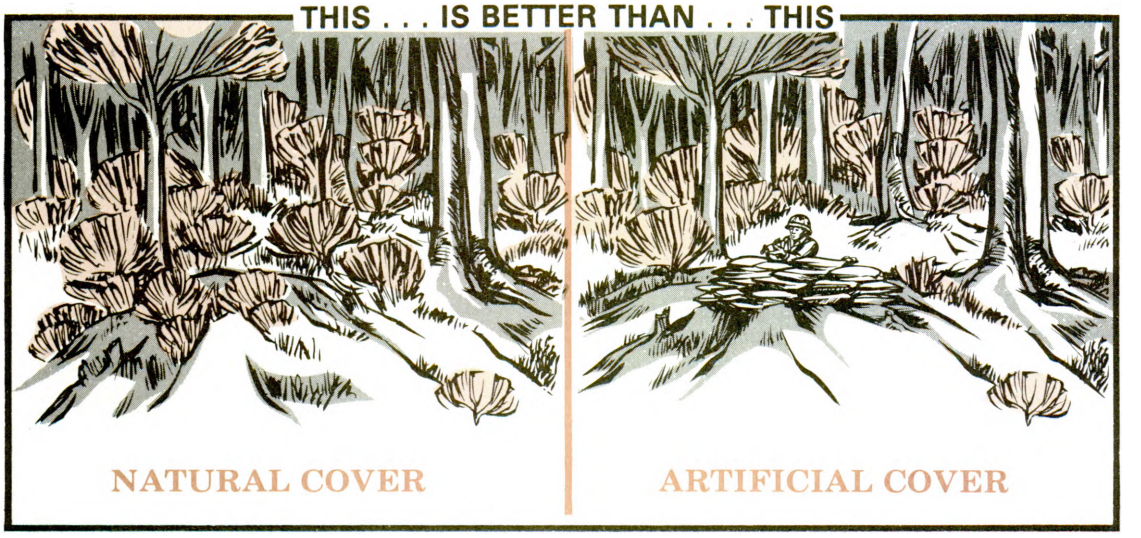
This fire includes bullets, fragments, flame, nuclear effects, and biological and chemical agents. Cover will also provide protection from enemy observation. It may be natural or artificial.



Natural cover **(ravines, hollows, reverse slopes)** and artificial cover **(foxholes, trenches, walls)** protect you from fire. The battlefield provides cover such as rubble, abandoned equipment, and craters. Even the smallest depression or fold in the ground will give you some cover when it is needed. A 6-inch depression may be enough cover to save your life under fire. Form a habit of looking for, and using, every bit of cover the terrain offers.

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In the defense, when the enemy approaches your position and brings it under heavy direct and indirect fire, there must be adequate cover to protect your men. **NATURAL FRONTAL COVER** (logs, stumps, trees, etc) is BEST because it is less easy for the enemy to spot. Try to select positions for your men that provide good frontal protection.



No amount of frontal cover will protect you if your positions are exposed to direct fire from long-range enemy weapons. Don't put your squad in a position where the enemy can fire on you at greater ranges than you can fire on him.

In order to have more protection from direct and indirect fire than can be provided by natural cover, fighting positions for dismounted infantry are built.

The type and extent of preparation will vary according to the mission, the length of stay, and danger from enemy fire. In some situations simple prone shelters are used, while in others, more fully developed positions, including fighting positions with overhead cover and connecting trenches, are prepared.

Because of the faster tempo and more frequent movements associated with the active defense, the mechanized infantry will often have little time to prepare fighting positions. Fighting positions of some type are normally constructed on positions the platoon will occupy dismounted for longer than a brief halt.

COVER FOR THE ARMORED PERSONNEL CARRIER

The APCs provide a major portion of the firepower of the platoon and squads; but they, in turn, are vulnerable to enemy fire. APCs should occupy firing positions in defilade to have maximum cover.

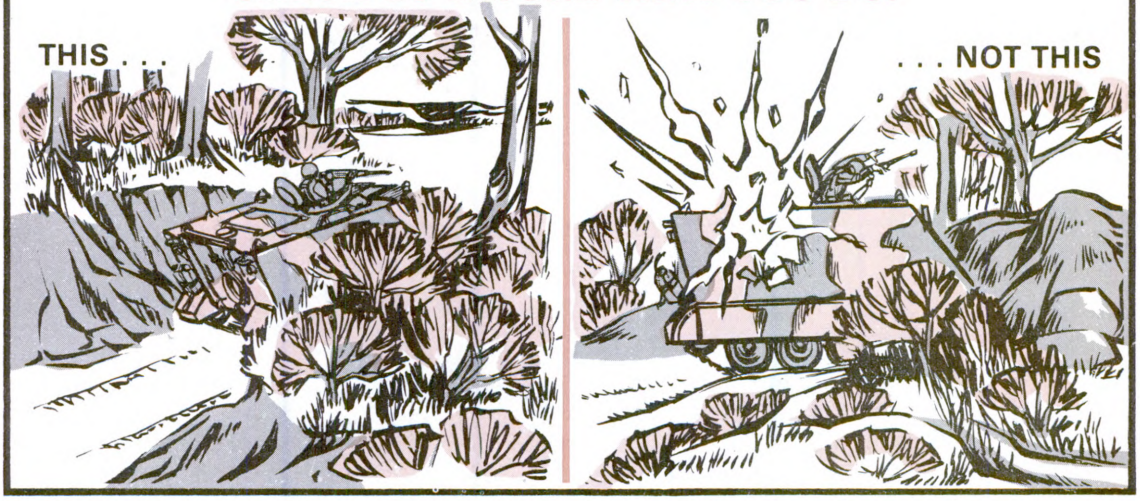
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Ideally, the gunner should just be able to fire with the track completely behind cover. Moving into such a position requires teamwork on the part of the gunner and driver--with the gunner telling the driver just how far forward to move the carrier.



You must have cover to the flanks as well as cover to the front.

CHECK TO INSURE THAT YOU DO.



COVER WHEN MOVING. . .

When moving or attacking, your best protection from enemy direct fire is the terrain's natural cover. When you are moving, select a route which puts cover between you and where you know or think the enemy is. Use every ravine, hill, wooded area, and anything else to keep him from shooting at you.

FOLLOW THESE SIMPLE RULES:

DO

- USE ALL AVAILABLE COVER.
- CROSS OPEN AREAS QUICKLY.

DON'T

- SKYLINE.
- MOVE DIRECTLY FORWARD FROM FIRING POSITION.

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CONCEALMENT



CONCEALMENT IS PROTECTION FROM ENEMY OBSERVATION. It is concealment, natural or artificial, that hides or disguises a soldier, carrier, position, equipment, or a route. Concealment includes not only camouflage but also light, noise, movement, and odor discipline. Well- concealed carriers and foxholes will deceive the enemy as to your location. Natural concealment is provided by your surroundings. The best way to use this natural concealment is to leave it undisturbed as you move into an area. Against an enemy who has night vision and other detection devices, darkness will no longer conceal you. Concealment from the air is also required.

CAMOUFLAGE



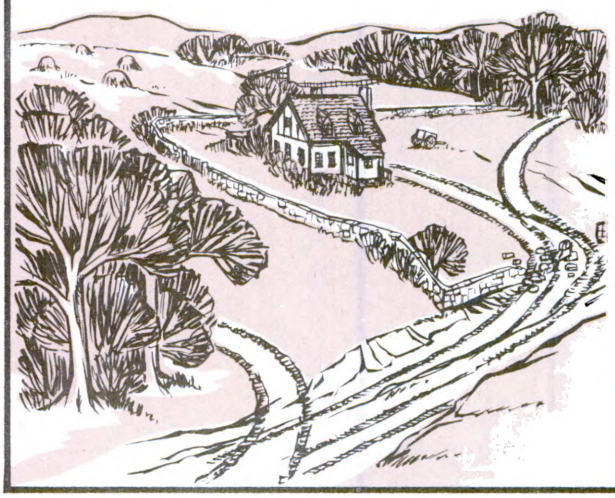
CAMOUFLAGE IS MANMADE CONCEALMENT. Camouflage is the taking advantage of the natural environment as well as the application of natural and artificial materials. Used properly it will disguise your unit and minimize the possibility of detection and identification by the enemy. If camouflage material is required, plan to get it from areas other than your platoon's position. Camouflage can be made from branches, bushes, leaves, and grass. Attach this material to your APC with old communication wire. Live foliage for camouflaging is best, because dead foliage and artificial materials may not blend in well with the natural surroundings.

The enemy's greatest effort will be directed toward locating the weapons which hold up his attack. If he finds them, he will soon destroy them. Therefore, they must be not only covered, but concealed as well. Clever use of camouflage will conceal you in areas which at first appear to be open and exposed.

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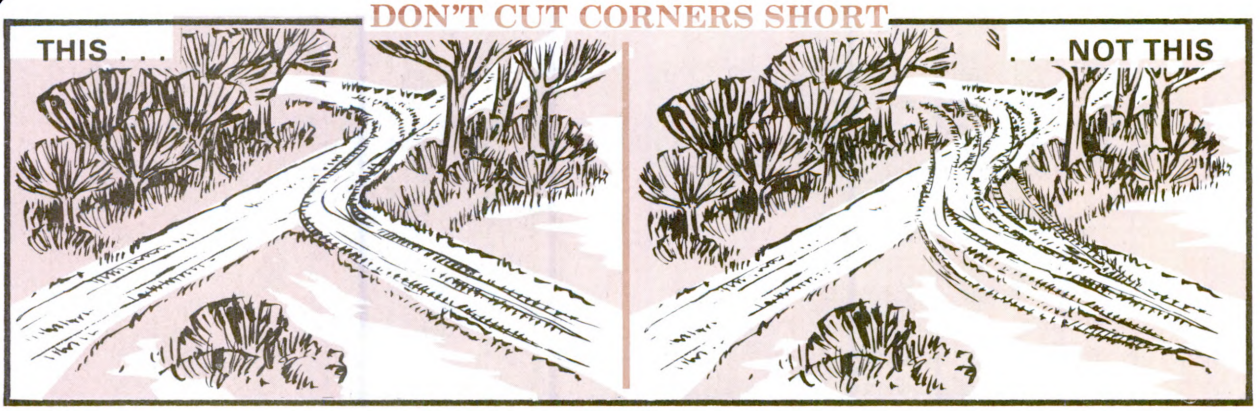
CAMOUFLAGE CONSIDERATIONS

You must understand how clues are given and avoid giving the enemy clues to your location. These cluse are **MOVEMENT, POSITION, SHINE, COLOR, TEXTURE, DISPERSION,** and **SHADOW.**

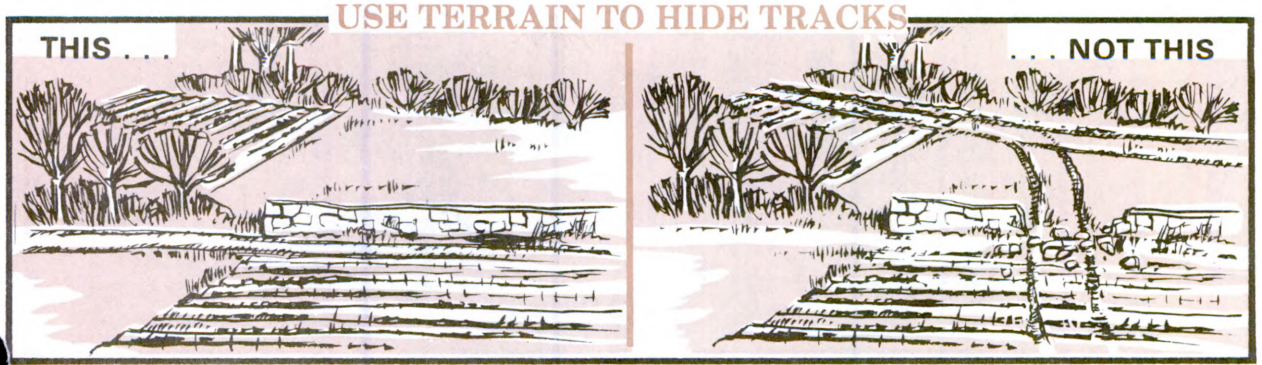


MOVEMENT attracts attention and is the quickest way to give away your location. An observer is likely to catch movement within his field of view. Movement, such as arm-and-hand signals, are visible to the naked eye in hand signals, are visible to the naked eye at ranges in excess of 1,700 meters. Comparisons of aerial photographs taken of the same area at different times will indicate movement of troops, vehicles, and other objects, which aids enemy target acquisition. It is not necessary for troops to move to be seen--tracks can be seen after movement has taken place.

TO HIDE TRACKS
DON'T CUT CORNERS SHORT



USE TERRAIN TO HIDE TRACKS



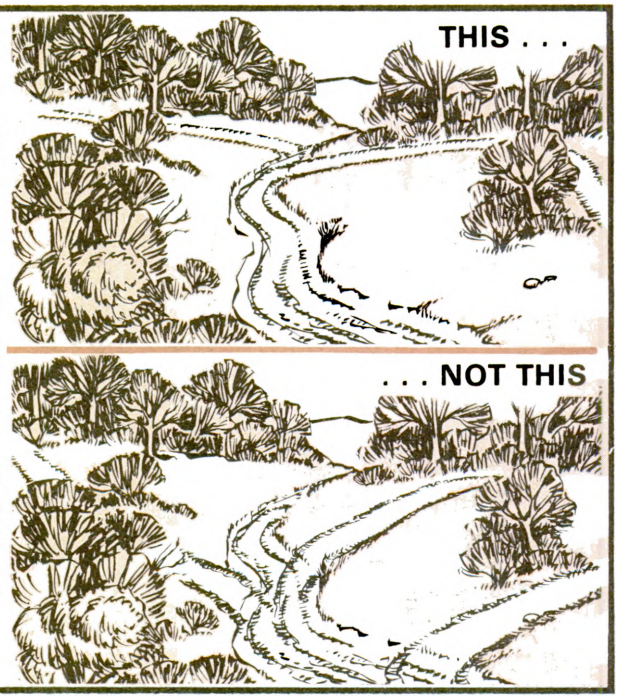
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KEEP NEW TRAILS TO THE ABSOLUTE MINIMUM

New trails must blend into the background pattern, following hedges, areas of stone or rock, gullies and streambeds, under trees, and along the edge of grassland and scrub.

New trails which cannot be fitted into the ground pattern must not stop at the position to which they lead, but be extended further to deceive the enemy.

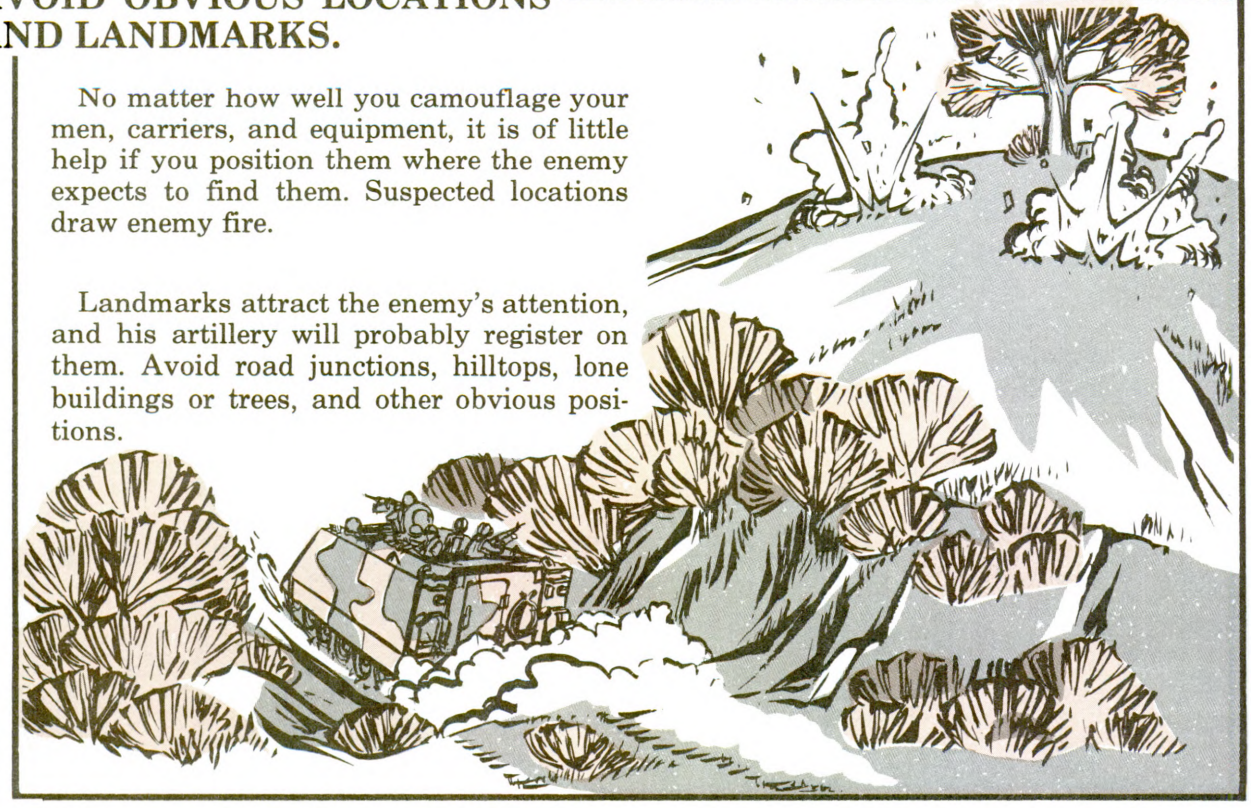
POSITION is the **RELATION** of a man or an object to its background. Positions for men and materiel should permit blending or absorbing to provide concealment. Camouflage material should blend with the ground/background.



AVOID OBVIOUS LOCATIONS AND LANDMARKS.

No matter how well you camouflage your men, carriers, and equipment, it is of little help if you position them where the enemy expects to find them. Suspected locations draw enemy fire.

Landmarks attract the enemy's attention, and his artillery will probably register on them. Avoid road junctions, hilltops, lone buildings or trees, and other obvious positions.



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SHINE may be either a **LIGHT SOURCE**, such as a cigarette glowing during darkness, or **REFLECTED LIGHT** from smooth, polished surfaces, such as shiny boots, mess equipment, a worn helmet surface, a windshield, binoculars, eyeglasses, watch crystal, or exposed skin surfaces not toned down with face paint. Avoid the use of lights or reflection of light that will aid enemy detection. Keep the shine down on your equipment. Pattern-paint vehicles to avoid shine. If paint isn't available, use mud.

SHAPE refers to **OUTLINE** or **FORM** apart from either color or surface characteristics, e.g., the shape of the steel helmet is easily recognized as is the undisguised shape of the human body; use both camouflage and concealment to cause familiar shapes TO BLEND with the surroundings.



COLOR aids detection where there is a contrast between the color of a soldier or object and its background, such as white skin against the dark green of jungle foliage.

You must rigidly control the exposure of colors that contrast with the natural background of terrain and vegetation. Do not use bright colors not common to nature. A distinctive scarf may boost morale until men realize it is causing casualties by serving as a detection clue and amining point for snipers.

TEXTURE governs the degree that a surface will absorb and scatter or reflect light. Rough surfaces tend to appear dark, whereas relatively smooth surfaces may change from dark to light. A change in the direction of viewing or lighting will cause this to happen.

Smooth sides or decks of uncamouflaged armored vehicles lack texture and will reflect light. Uncamouflaged steel helmets will also reflect light. Use nets, burlap, helmet covers, flat paint, and foliage to camouflage and avoid enemy detection based on contrast.

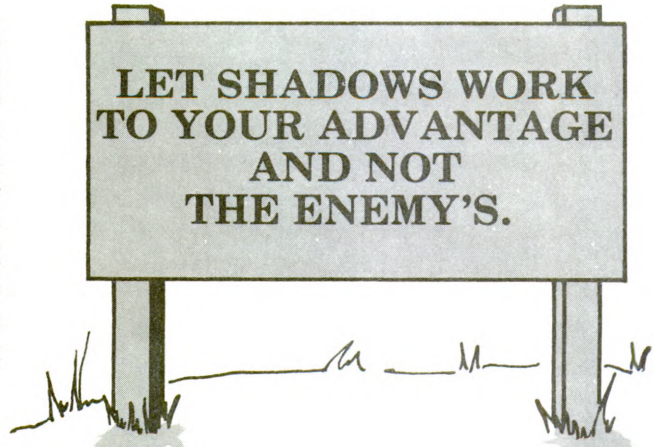
ROUGH SURFACES ARE BEST

DISPERSION is the **DISTANCE** between men, vehicles, and equipment. If your unit is not dispersed, it is easier to detect. Remember what the enemy's weapons can do if you are detected. Prescribe distance and intervals, then enforce dispersion discipline.

Avoid obvious patterns of vehicles and men (geometric formations) that tend to attract attention.

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SHADOW may reveal the existence and the nature of targets to air or ground observers. Avoid exposing your men to the effects of long shadows cast by moving men in late afternoon and early morning. Do this by proper route selection. Disrupt familiar shadows (e.g., tanks, carriers) with camouflage; and where practical, occupy shaded areas to exploit their concealment. This is particularly true in a built-up area where you can use the shadows of buildings. Think ahead. That's your best plan.

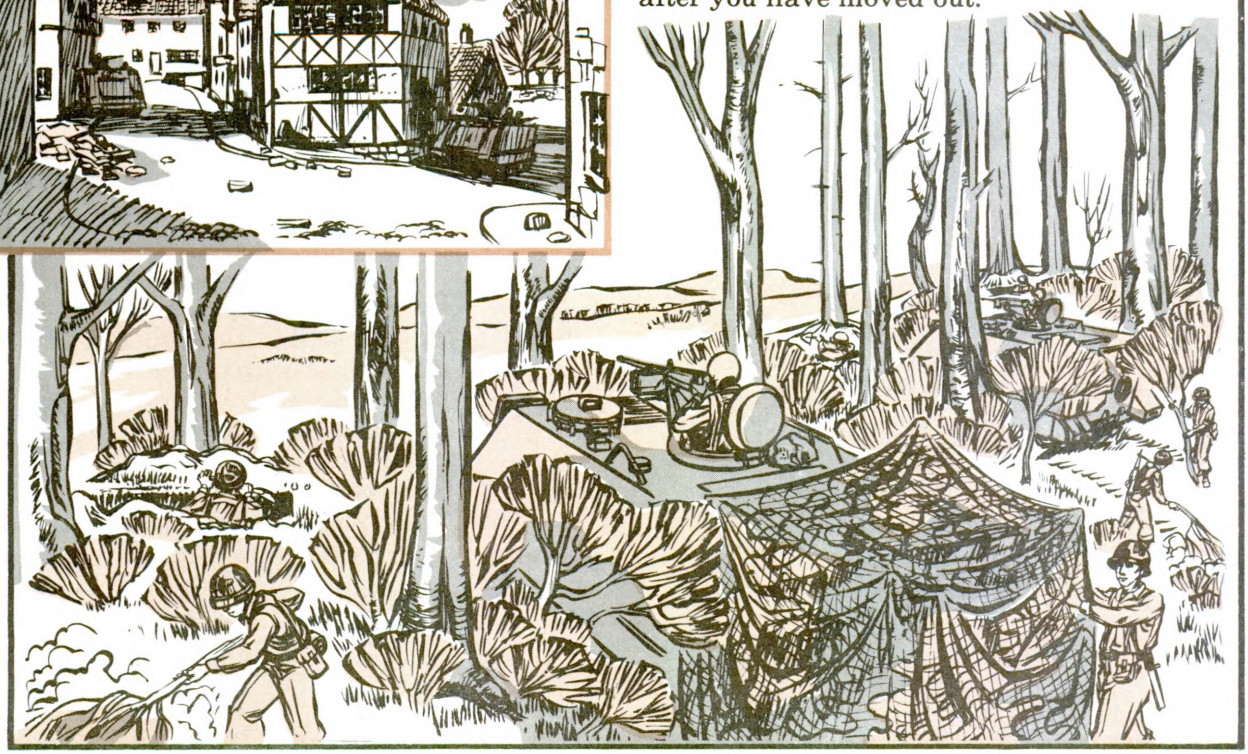


Take care when using shadows for concealment. Vehicles parked in shadows must be moved as the shadows shift. If a vehicle is under a tree, shadows and foliage normally do not give enough concealment. It should be further camouflaged with branches.



HOW TO CAMOUFLAGE

For your unit to discipline itself in applying all camouflage measures, you must **SET THE EXAMPLE.** This will apply prior to moving into an area, while you are there, and after you have moved out.



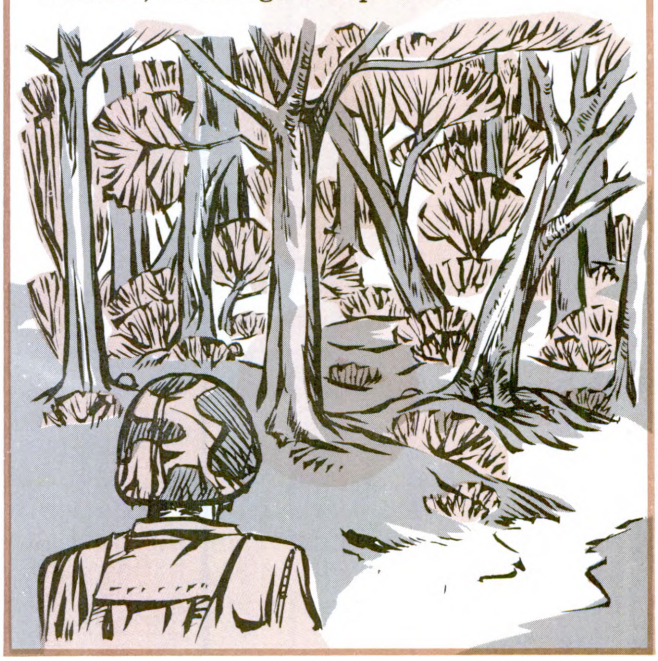
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To properly camouflage your men, carriers, and equipment STUDY the TERRAIN and VEGETATION in the area you are in, going through, and going to. Arrange grass, leaves, brush, and other natural materials you use to conform with the natural area. For example, do not expect tree branches stuck into the ground in an open field to provide camouflage. You may have to change camouflage en route as you pass through an area that differs from an earlier one.

Any spoil from foxholes and latrines must be camouflaged or hidden under overhead cover. If necessary, it should be taken from the foxholes and carried to the nearest cover during digging. Camouflage any spoil used for parapets or overhead cover. The bottom of the holes must also be camouflaged to prevent detection from the air. Site positions under cover or along some break in the pattern of the ground, that is, at the edge of a cultivated area or an area of low scrub or long grass. I may be difficult at times to find positions which also accomplish your mission, but some compromise usually is possible. It is impossible to completely conceal a prepared platoon position which is one in the open, away from any break in the ground pattern, so these areas should be avoided.

DOES IT LOOK NATURAL?

After camouflage is completed, inspect it from the enemy's viewpoint. Check often to see if it remains natural-looking and actually conceals your position. If it does not look natural, rearrange or replace it.



MAKE YOUR POSITIONS LIKE THE NATURAL SURROUNDING TERRAIN

Use only as little material as needed. Excess material (natural or artificial) can reveal your position. Get material from a wide area. Do not strip an adjacent area of all foliage as it will then attract attention.

Positions must be progressively camouflaged as they are built. The concealment of spoil is a continuous process. Work should not stop at any time until all camouflage is complete. Work on a defensive position during daylight will depend on the enemy air threat and if the enemy can observe you or not. When he has air superiority, work may only be possible at night. Shiny or light objects which attract attention from the air must not be left lying about. Mess tins, mirrors, food containers, white underwear or towels must all be hidden. Men should not be allowed to remove their shirts unless there is no air threat. Fires must not be lit where there

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is any possibility of the smoke or flame being seen by air observation. Tracks and other indicators of movement must be hidden.

Equipment must blend with the natural background. Remember--vegetation changes color with the season.

Alter the distinctive silhouette of your helmet with the issue helmet cover or one made of cloth or burlap colored to blend with the terrain. Make sure it fits loosely--not tight. A tight camouflage cover looks neat but is easy to see. Let foliage stick over the edges of the outline--but do not use too much. Use a camouflage band, string, burlap strips, or rubber bands to hold the foliage in place. If material for helmet covers is not available, disguise and dull the surface of your helmet with irregular patterns of paint or mud.

Your uniform must blend in with the surrounding terrain. Faded equipment is hard to hide. Turn in faded equipment or use mud, camouflage stick paint, or other expedients to color them until they can be exchanged.

Wear a snowsuit and color your equipment white when operating against a background of unbroken, snow-covered terrain. (Except for the snowsuit, there is no issue camouflage suit for unusual conditions.) If a snowsuit is not available, you can make one from a sheet, mattress cover, or other white cloth. You can make a suit to blend with other terrain by dyeing an old set of fatigues or by attaching bow ties of colored burlap garlands to an old set of fatigues. Combat uniforms can be stained and dyed.



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Exposed skin reflects light and attracts the enemy's attention. Even very dark skin will reflect light because of its natural oil.

Camouflage face paint sticks are issued in three standard two-tone sticks--

- LOAM and LIGHT GREEN for vegetated regions.
- SAND and LIGHT GREEN for desert and dry areas.
- LOAM and WHITE for snow-covered terrain.

When they are available, use the face paint sticks to apply two-color camouflage in an irregular pattern.

Paint the shine areas (forehead, cheekbones, nose, ears, and chin) with a dark color.



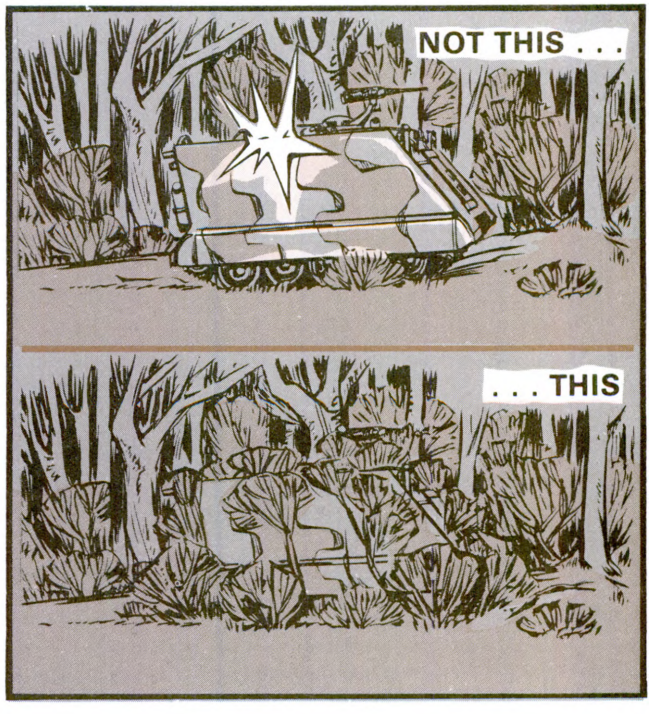
Paint the shadow areas (around the eyes, under the nose, and under the chin) with a light color. Paint exposed skin on the back of the neck, ears, arms, and hands.

When face paint sticks are not available, use burnt cork, charcoal, or lampblack to tone down exposed areas of the skin. You may use mud but mud dries and may peel off leaving skin exposed. Furthermore, it may contain harmful bacteria.

When applying camouflage, have your men use the buddy system--each works with another man, they check each other. Then you must check everyone in your squad.

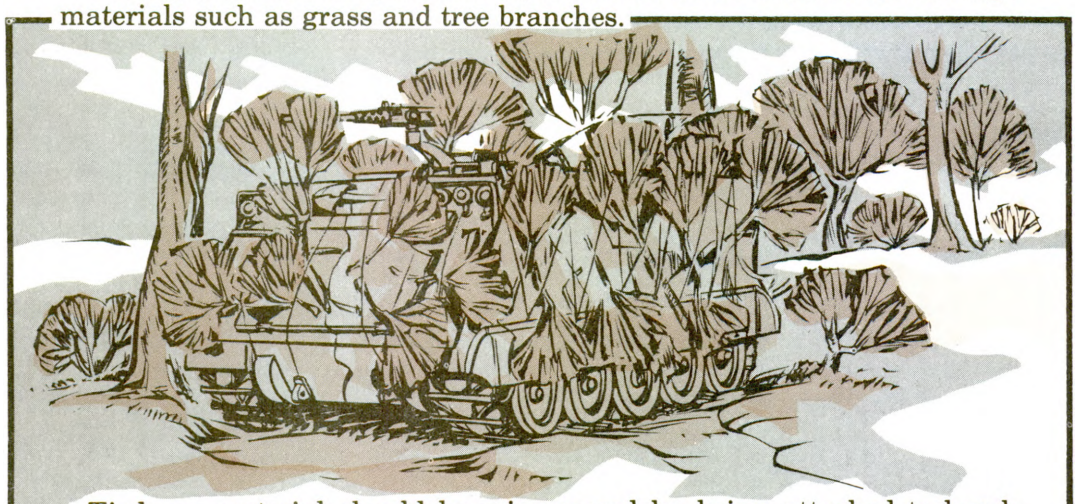
CAMOUFLAGING THE CARRIER

All APCs require PATTERN PAINTING for combat. Pattern painting reduces the enemy's ability to see your vehicle--moving or stationary. Change patterns according to the season and location to best hide the carrier. You MUST NOT RELY on pattern painting alone. The addition of natural materials tends to break up the shape of the APC (straight lines are always a dead giveaway) and to conceal it while moving.



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Use rope, chicken wire, twine nets, or wire to tie down natural camouflage materials such as grass and tree branches.



Tiedown material should be crisscrossed by being attached to brush guards and tiedown loops on top of the APC and to the shroud bolts on the bottom. Branches can then be inserted into the wire.

Tiedown material and camouflage material should not interfere with maintenance or cal .50 machinegun operation. Troops in the cargo hatch must be able to see and to shoot.

Change or replace camouflage as necessary.

To defeat infrared airborne detectors, position your carrier under live vegetation or in a building. This shows up as "hot" on infrared devices, and anything which gives off heat, can help disguise the heat from the track.

When little concealment is available on a firing position, the carrier may be kept in a **HIDE POSITION**, a completely concealed location. An observer is positioned forward to keep the sector under observation, and the carrier is moved forward to fire. This technique is particularly good for hiding carriers from enemy aircraft.

SEEING THE ENEMY

The enemy will also try to hide his positions and movements. When looking for the enemy, use your binoculars. Look for the same things you try to camouflage when you are hiding your own positions. Specifically look for--

- straight lines (they do not occur naturally).
- tracks or other evidence of activity.
- broken foliage or foliage that doesn't match.
- movement.
- glare or shine.

Remember that the leader who **COVERS** and **CONCEALS** his troops and, at the same time, uses his weapons properly will have a significant advantage over a force that does not.

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APPENDIX A

THE M113 ARMORED PERSONNEL CARRIER

Section I.
COMBAT LOADING

Combat loading is the stowing of ammunition and equipment inside an APC in a logical sequence and location so that high-use items are readily accessible. Put low-use items such as sleeping equipment in the APC first and high-use items such as .50 cal ammunition in last. Proper loading is essential to efficient operation. A stowage SOP is usually established by company or platoon to make it easy to find a wanted item quickly. As all operations do not take place in daylight hours, every man should know where all items in his APC are and be able to find them at night without light.

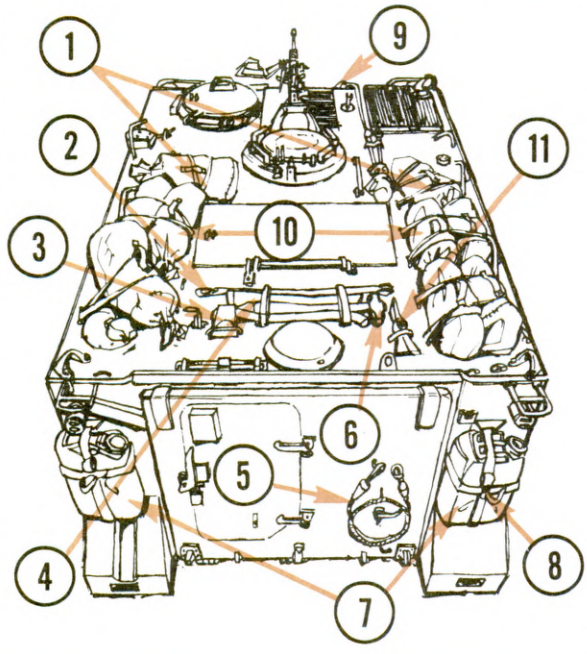
The plans shown on the following pages cover only basic items and are examples only. The example for the exterior shows duffel bags strapped to the carrier. In many situations these will not be carried on the APC but will be carried during the day in the company supply truck.



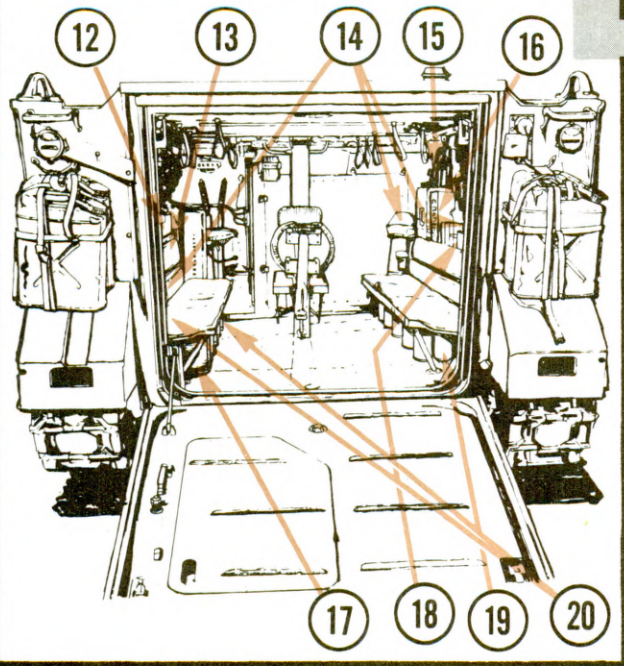
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M113 EXTERIOR VIEW

1 STRAPS
2 CROW BAR
3 AXE
4 MATTOCK HANDLE
5 TOW CABLE
6 SLEDGE
7 WATER CANS
8 STRAP
9 SHOVEL
10 DUFFEL BAGS
11 MATTOCK HEAD



M113 INTERIOR VIEW



12 TOOL BAG
13 SPARE EQUIPMENT
14 DRAGON
15 DRAGON TRACKER
16 C-RATIONS
17 50 CAL AMMO
18 5.56-MM
19 7.62
20 MINES

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Section II.
CONTROLLING MOVEMENT OF THE APC

The APC's commander can control its movement by giving orders to the driver over the intercom system. Examples of orders:

STARTING:	DRIVER - MOVE OUT. DRIVER - HALF LEFT - MOVE OUT. DRIVER - FOLLOW 1ST SQUAD - DISTANCE 50 METERS - MOVE OUT.
CHANGE OF SPEED:	DRIVER - FASTER. DRIVER - SLOWER.
CHANGE OF DIRECTION:	DRIVER - LEFT. DRIVER - RIGHT. (On LEFT or RIGHT the driver turns until the squad leaders says STRAIGHT AHEAD.)
BACKING UP:	DRIVER STOP - BACK UP. *(to back straight to the rear)* DRIVER STOP - BACK UP - RIGHT LATERAL. *(to go left)* DRIVER STOP - BACK UP - LEFT LATERAL. *(to go right)*

Use the word DRIVER each time to alert him.

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IF YOUR INTERCOM SHOULD FAIL

If the intercom isn't working, the leader can control the driver with a short stick. For example:

- **A slight jab in the back means MOVE OUT.**
- **Several jabs in the back mean FASTER.**
- **Light taps on head mean SLOWER.**
- **Hard tap on head means STOP.**
- **Taps on left/right shoulder mean TURN LEFT/RIGHT.**

When the driver is well trained, you should not have to tell him what to do very often. Unless his APC is the lead carrier, a squad leader should follow the example of the platoon leader's APC. If the platoon leader stays 50 meters to the rear of the lead APC, the APC following the platoon leader should keep the same distance and speed.

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Section III.
MAINTENANCE

Your armored personnel carrier is the most important equipment you have. If it doesn't run, you no longer have the advantage of protection, firepower, and rapid cross-country mobility that you need to fight. To keep it running, you must see that all its required maintenance is well performed.

As a leader you are responsible for the maintenance of your carrier(s). You must know how to perform preventive maintenance, and what to do if a maintenance problem arises. Your driver(s) cannot perform all of the carrier's maintenance, so assign definite maintenance responsibilities to your men so that everything gets done and nothing is overlooked. The operator's manual (TM 9-2300-224-10) for the M113A1 has a list of the preventive maintenance checks and services that carriers need. Study them carefully and assign certain ones to certain soldiers and hold those men responsible for getting their jobs done.

Have a system for performing maintenance on the carriers that will work on the battlefield. The TL/gunner and the carrier team members may be the men you charge with carrier maintenance. As the composition of the carrier teams may change from one operation to the next, you may need more men for maintenance than you have assigned to the carrier team.

PREVENTIVE MAINTENANCE INSPECTION

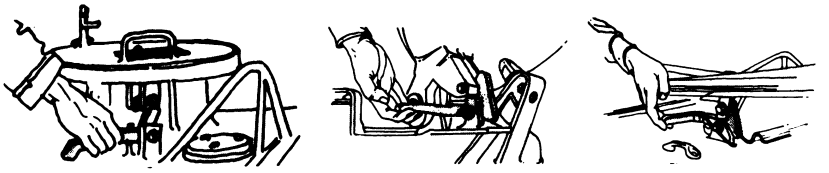
Inspect to make sure that your APC has had the proper maintenance performed on it. For your inspection you need the proper tools, i.e., wrenches, screwdrivers, a flashlight, rags, and a DA Form 2404 (Equipment Inspection and Maintenance Worksheet). With these items you can inspect for tightness of bolts and screws, presence of leaks, and correct fluid levels. If you can find something that needs to be corrected, record it on the 2404. The XO or first sergeant will pick these up daily and give them to maintenance.

Decide exactly how you want to inspect and use the same sequence time after time. You will soon be able to quickly detect anything that is wrong with the carrier. Chapter 1 of DA Pamphlet 750-1 (Commander's Guide of Preventive Maintenance Indicators) provides general information for use in evaluating the effectiveness of your preventive maintenance program. The following sequence can be used.

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TOP SIDE INSPECTION

1

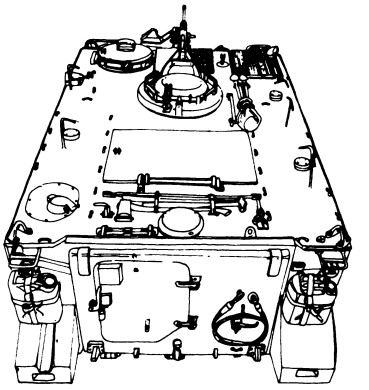


DRIVER'S, COMMANDER'S AND CARGO HATCHES. Test all hold-open hooks. Check their adjustments. Seals OK? Hinges lubed and not broken.

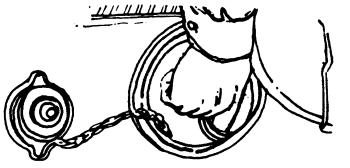
2 *PERISCOPES* - None broken, cracked or painted over. All locked in place.

2 *VENTILATOR INTAKE* - Not obstructed.

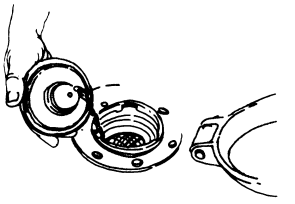
4 *GRILLES* - Dirt free.



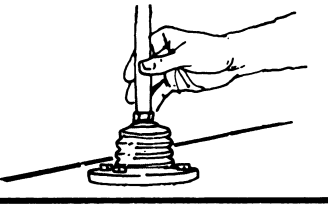
5 *WATER INTAKE* - Radiator cap, gasket and relief valve free of dirt and in good shape. Water level at base of filler neck. Antifreeze OK?



6 *REAR BILGE PUMP OUTLET* - Opening free. Pipe not crushed.



7 *FUEL INTAKE* - Cap and strainer in place and not damaged. Cover, pin and chain OK? Fuel level three to five inches from top of neck.

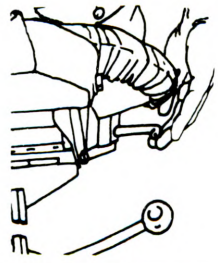


8 *ANTENNA* - Mountings not cracked. Base threads free of dirt.

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1 IN THE DRIVER'S COMPARTMENT

DRIVER'S SEAT - Up, down, forward and backward adjustments lock and work freely. Spring action locks work OK.



2 *PERISCOPES* - Clear vision, locked in place, not broken.

3 *MASTER SWITCH* - Works freely. Not broken or damaged.

4 *SLAVE RECEPTACLE* - Sockets, contacts not burned beyond use. Cap OK?

5 *INSTRUMENT PANE* - No broken glass, switches or missing light covers.

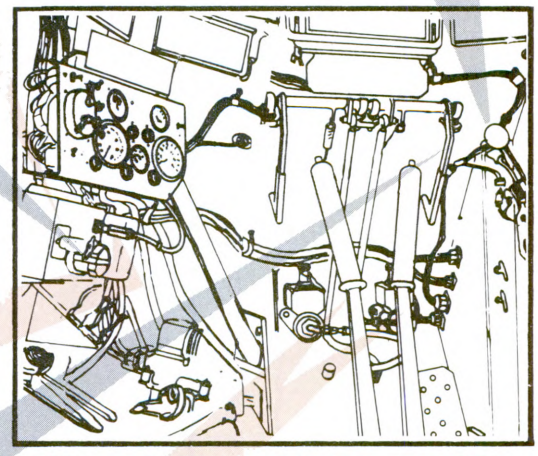
6 *INFRARED STOWAGE RECEPTACLE* - Not damaged. Cable attached if M19 scope's not in use.

7 *PIVOT STEER CONTROL LEVER* - Works freely, no missing, bent or broken parts.

8 *MAIN STEERING CONTROL LEVERS* - No parts missing, lock buttons depress and return, no obvious looseness of damage.

9 *RANGE SELECTOR LEVER* - No broken or bent parts. Shifts freely. Linkage doesn't bind.

10 *ELECTRICAL WIRING* - None broken, ripped from bulkhead or naked. Connectors tight.



11 *ENGINE COMPARTMENT PANEL* Latches work, seals OK.

12 *GENERAL* - Look around for obvious damage. If you spot anything suspicious write it up on your DA Form 2404.

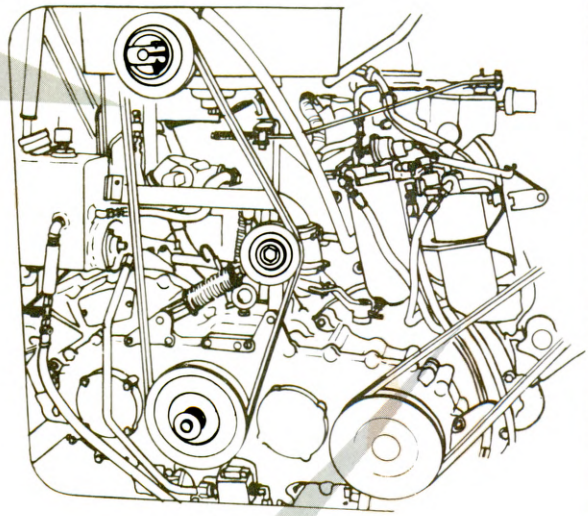
If everything checks out fine you're now ready for the Before-Operation Checks.

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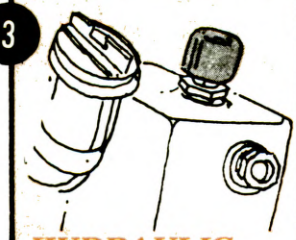
ENGINE COMPARTMENT

(FROM THE REAR)

1 ***FAN BELTS*** - Both tight. No noticeable slack. Not deeply seated in the pulleys. No bad cracks or cuts.

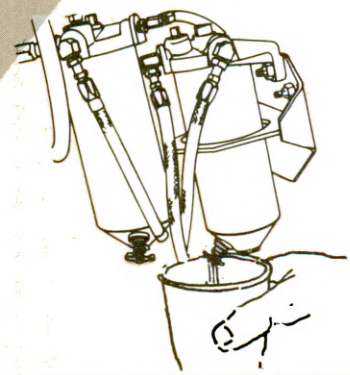


2 No oil, fluel, water or hydraulic fluid puddles or run streaks.

3 

HYDRAULIC TANK BREATHER - Not clogged.

FUEL FILTERS - Drain daily, (catch in a container) ¼ pint each. 5

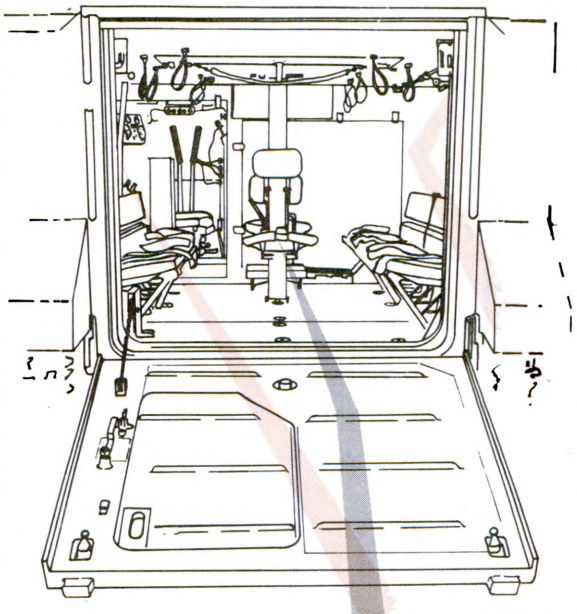


4 ***GENERATOR BELT*** - Tight, but with a little slack. No bad cuts or cracks.

6 ***GENERAL*** - No suspicious looking, loose, broken, or missing parts.

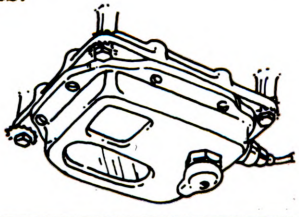
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THE CREW COMPARTMENT
(INSIDE)

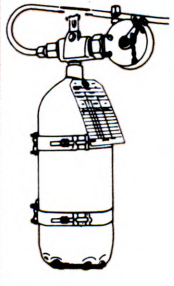


1 *TROOP SEATS* - No safety straps missing. Can be secured to backrests.

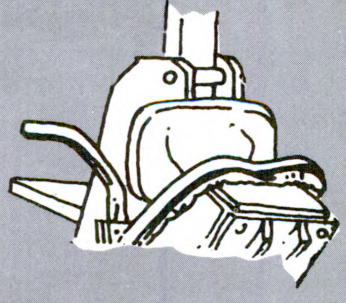
2 *DOME LIGHT* - Works OK. No lens broken. No missing parts.



3 *FIRE EXTINGUISHERS* - Seals OK and in place. No instruction plates painted over or missing. No damaged or missing parts, is the tag up to date?



4 *COMMANDER'S PLATFORM AND JUMP SEAT* - Operate controls to make sure seat locks in vertical and stowed positions.



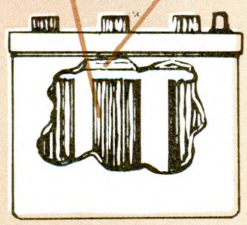
5 *COMMANDER'S CUPOLA*

Doesn't bind when rotated. Azimuth lock OK? Periscopes locked in place. Clean. Hatch lock work OK?

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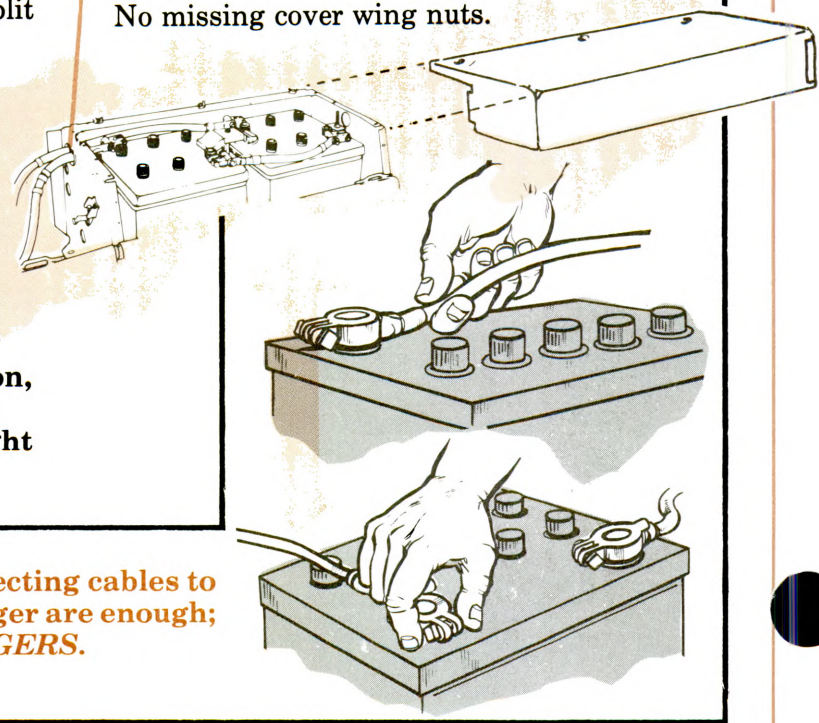
BATTERIES

6 *BATTERIES* - Electrolyte should be at least 3/8 inch over plates (level with split ring).



Insure rubber grommet is present and serviceable.

No missing cover wing nuts.

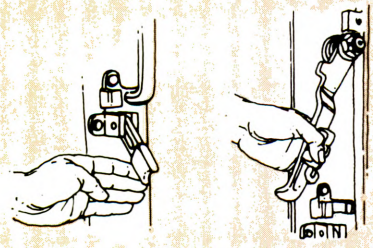


Cables tight, no corrosion, box clean, hold-down clamps tight, with a light coat of GAA.

NOTE

When removing or connecting cables to batteries, thumb and finger are enough; *NO PLIERS, JUST FINGERS.*

7 *VENTILATORS (2)* - Opens and closes OK. Controls work freely.



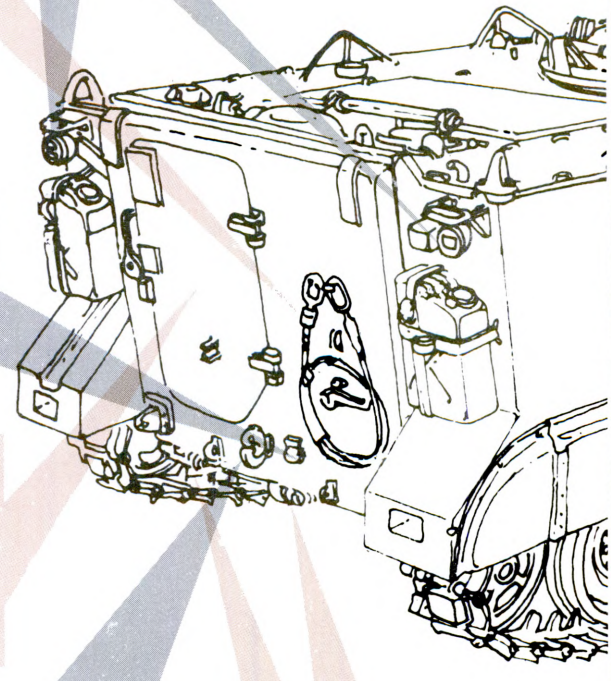
8 *RAMP DOOR LOCK AND LATCH* - Works OK. Not bent. Instruction readable.

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REAR

(RAMP CLOSED)

1. *REAR LIGHTS* - No broken lenses or missing parts.
2. *TOW CABLE* - In place and attached tight.
3. *CABLE RECEPTACLE AND CONNECTORS* - Free of dirt. Cover and gaskets OK. No broken wiring.
4. *RAMP DOOR* - Seal good all around. Latch-handle locks and works freely. Hold-open latch OK. Hinges lubed. Door seals not warped.
5. *PINTLE HOOK* - Lubed. Latches, spring working.
6. *RAMP HINGES* - Dirt free. No missing bolts.

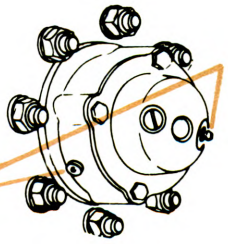


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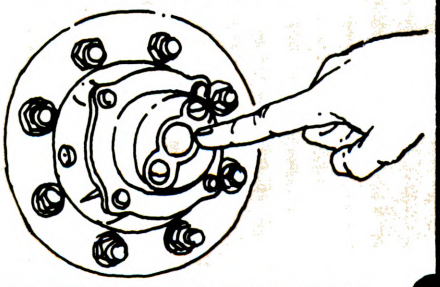
RIGHT SIDE

1 *SHROUD* - Not ripped or buckled, no bolts missing.

2 *HUBS LUBED WITH GREASE* - No missing, broken or smashed lube or relief fittings.



Hubs lubed with oil must show half full in the road wheel and idler wheel hub sight windows. Bubbles in oil mean water contamination - drain and change oil.



3 *SUSPENSION SYSTEM* - Look for too much wear, cracks or breaks on tracks, road wheels, shock absorbers and torsion bars. If torsion bar is broken, carrier will list to one side.

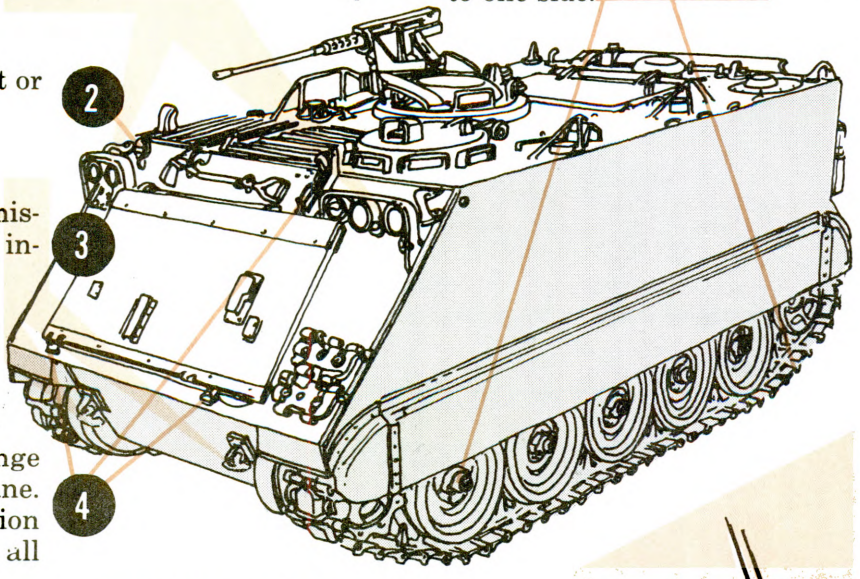
FRONT

1 *HEADLIGHTS* - No broken lenses, missing parts or broken wires. No moisture in lenses.

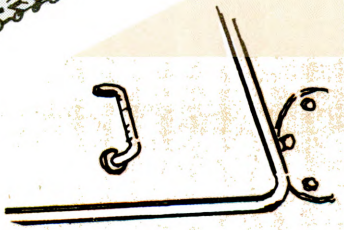
HORN - Not broken, bent or wire pulled out. 2

TOW HOOKS - None missing or bent. Should be inverted. 3

TRIM VANE - Lift hinge cover, swing out the vane. Hinges, catches, extension handle and spring should all work OK. 4



5 *POWER PLANT DOOR* - Exterior handle, inside lock, hinges and brace all in good working order. **Seals** - not ripped, distorted or missing.



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ENGINE COMPARTMENT

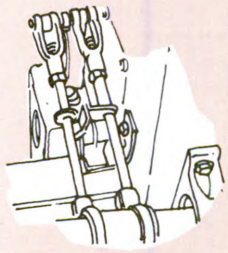
(INSIDE)

1. *LEAKS* - No fuel, oil or water leaks.

2. *ELECTRICAL WIRING* - connections tight. No broken or naked wires.

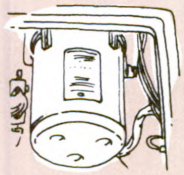
3. *ENGINE COMPARTMENT FLOOR* - No excessive oil or waste that could be a fire hazard.

4. *WATER PUMP DRIVE BELTS (set)* - No cuts, bad cracks or badly frayed edges. Both tight with slight deflection.

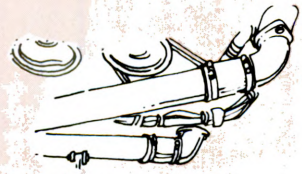


5. *CONTROL LINKAGE* - Not binding, bent, cotter keys in place.

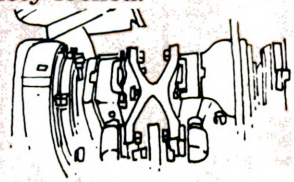
6. *AIR CLEANER* - Container seated and clamped right. Safety pins in place. Air hose clamps tight. No cuts or leaks.



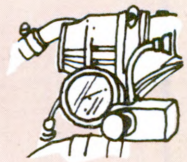
7. *COOLING SYSTEM* - Hose clamps tight. Hoses firm, no cuts, or large dents in tubing.

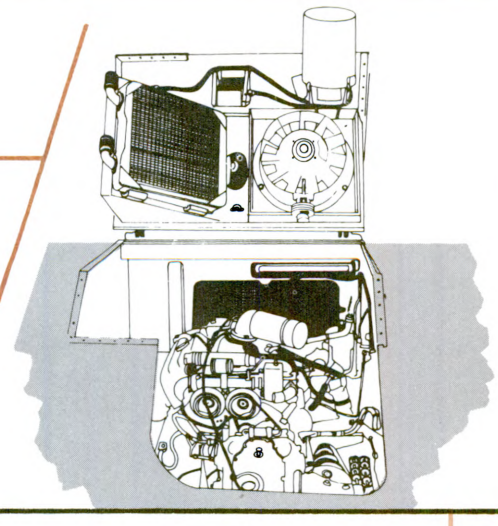


8. *DRIVE SHAFT U-JOINTS* - All bolts tight and safety locked.



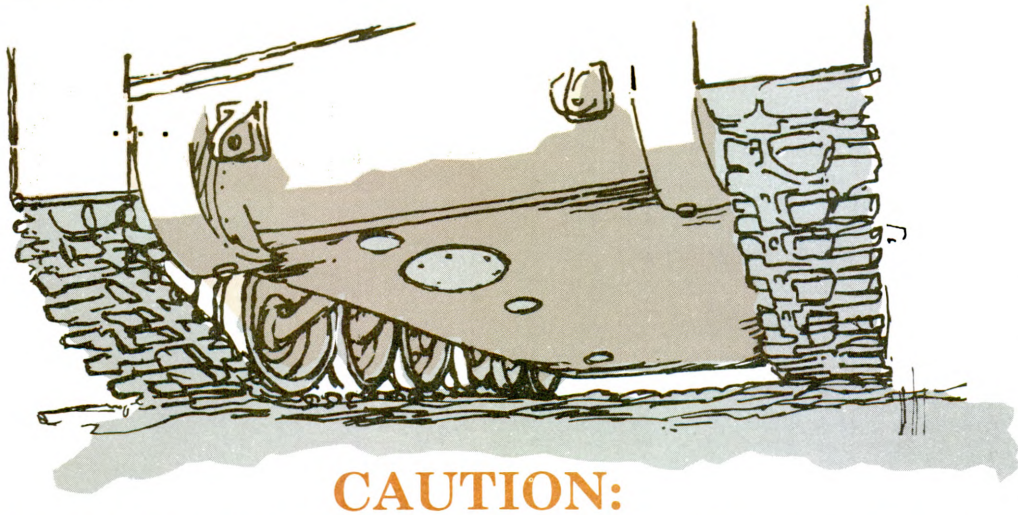
9. *ACCUMULATOR PUMP* - Gage glass not broken, pump not leaking, and works OK. No fuel in gage. (See -10TM)





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UNDERSIDE



CAUTION:

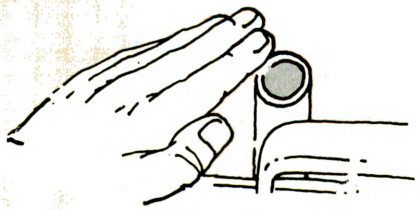
Operation of vehicle with drain plugs and access plates missing may cause engine to overheat.

1. *LEAKS* - Look for oil, fuel, water or hydraulic fluid puddles. See any? Run down their source.

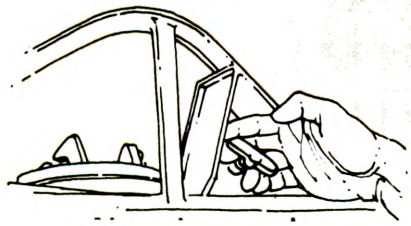
2. *DRAIN PLUGS* - Seated right and tight. A cocked plug can fall out during operation.

LEFT SIDE

1. *BILGE PUMP* - Opening not plugged.



2. *FIRE EXTINGUISHER CONTROL* - Not damaged or obstructed. Seal not broken.



3. Inspect shroud

4. suspension systems

5. hubs just like RIGHT SIDE.

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DURING-OPERATION CHECKS

1. While rolling along glance at the instrument gages and warning lights every now and then. The engine temperature gage should read in the 160° to 200° area. And no HI TEMP warning light should be on. If any light does come ON, or the engine temp gages goes well above 200°, stop the carrier, shift into N and idle the engine at 1500 RPM for several minutes. This should bring down the heat. But be sure the air intake grille is not covered or clogged.

2. Steering, braking, accelerator and shifting controls - Watch for looseness, binding, grabbing or any other defect that interferes with smooth operating.

3. Unusual noises and odors - Be suspicious of any out-of-the-ordinary sounds or smells.

   Sounds like - thud of a broken roadwheel or shock, chirp of a loose V-belt, squeal of a dry bearing, squeak of a loose part.

   Smells like - transmission, differential overheating, battery over-charging, burning rubber or oil, strong smelly exhaust.

AT HALT CHECKS

1. Get out and make a quick walk-around visual check. There should be no leaks of any sort.

2. Cautiously feel the road wheel hubs for excessive heat. If hot, it means the bearings are not adjusted right or it's low on oil. Shock absorbers should be warm, not real hot. Compare one with the other.

3. Look for missing, broken or loose parts.

4. After a long haul, check the engine, transmission, differential and transfer oil levels.

5. During the halt, keep the engine running at 1000-1200 RPM. This'll keep your engine at operating temperature and will keep the batteries charged. You need this if you're operating the radio or other electrical components.

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AFTER OPERATION

Just like the old cavalry days, your mount gets bedded down before you do. The "thing" here is to catch anything that may have gone wrong and to get the carrier ready for a quick get-away if the whistle blows.

In general, make the same checks as you did during your before-operation walk around inspection. If you don't have enough time for all of it, at least make these checks:

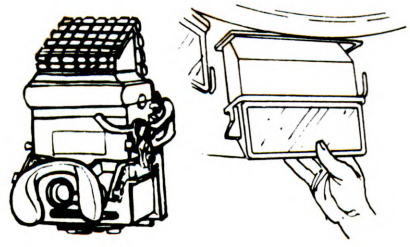
1. ***Road and idler wheel hubs*** - Feel if they're real hot and the oil is at sight levels. Their temperature should be about the same.

2. ***Track*** - Tension right and no broken track shoes.



3. ***Trim vane*** - Clear all debris. Release not damaged.

4. ***Periscopes*** - Clean. No cracks. Tight in channels.

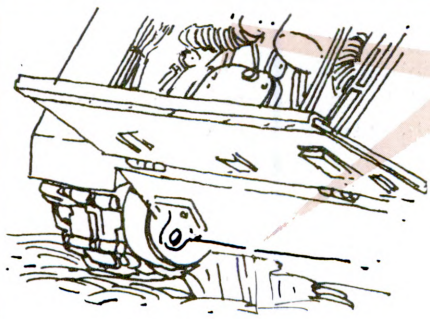


5. ***Levels*** - Fill radiator to bottom of filler neck. Battery electrolyte must be over plates.

Batteries: see page A-10, No. 6.

6. ***Oil levels*** - Check and refill, engine, transmission, transfer, final drives and fan gear box.

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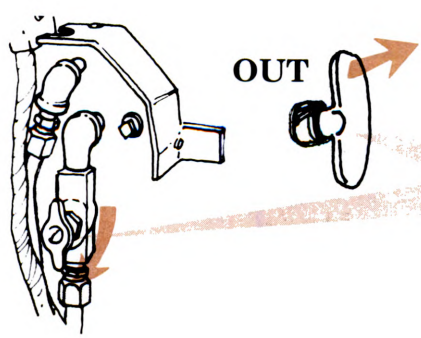


Leaks - Look underneath and in the engine compartment. 7

Fuel Filters - Drain. Especially in freezing weather. 8

Fuel Tank - Fill. Allow 3 inches in neck for expansion. 9

Clean - Wipe up oil or grease drippings from personnel and power plant compartments. Hose off mud caked in suspension. 10



Fuel Shutoff Valves - Turn 'em off if you're going to be parked overnight. 11

If you find anything wrong that you can't handle, write it up on your DA Form 2404 so your mechanic can take care of it before your next scheduled operation.

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DAILY LUBRICATION

Points to be checked daily. . . fill if needed.

ITEM	USE LUBE	HOW
DIFFERENTIAL	OE/HDO	1. First pull dip stick and be sure there's enough oil for operation. 2. Start and idle engine (550-600 RPM) for several minutes. Check oil level while engine is idling. 3. Oil level should be within 1/4 inch of FULL mark.
FINAL DRIVES	OE/HDO	Oil level should be anywhere between ADD and FULL marks.
FAN GEARBOX SIGHT LEVEL	OE/HDO	Level should be between ADD and FULL marks.
TRANSMISSION	OE/HDO	1. Engage engine quick disconnect. 2. Lock brakes. 3. Start and idle engine at 800 RPM for 3 to 5 minutes. 4. Shift to 2-3 position. Let oil reach operating temperature. 5. Move shift lever through all ranges to insure complete circulation. 6. Return shift to N. 7. Step engine up to 1500 RPM. 8. Check the oil level. It should be between the ADD and FULL marks.
ENGINE	OE/HDO	Stop engine, wait one minute. Level should be between ADD and FULL.

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ITEM	USE LUBE	HOW
HYDRAULIC SYSTEM TANK	OHA	1. Lower ramp. 2. Fluid should be at least halfway up in sight indicator. 3. To add, remove filler plug with breather attached. 4. Add fluid and replace plug.
TRANSFER CASE	OE/HDO	Level should be at FULL mark.
RAMP HOIST CABLE	OE/HDO CW	If it needs it, clean with oil and smear on a thin coat of CW.
ROAD AND IDLER WHEEL Bearings (12 places)	OE/HDO	Must show halfway up in sight indicator. To add oil . . . 1. Move APC until either plug is on upper side of the hub cap. 2. Remove plug and add oil. 3. Wait. . .allow time for oil to seep into lower part of hub. When at operating level, replace plug. If lube fittings have been installed, use grease gun with flexible adapter and fill each hub with GAA until it comes through relief valve. Don't confuse the grease fitting with the relief valve.

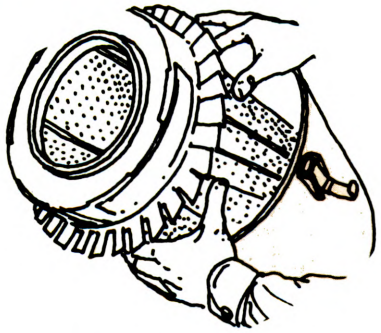
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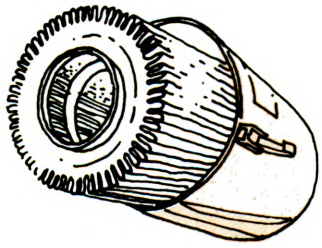
MAINTENANCE TIPS

AIR CLEANER

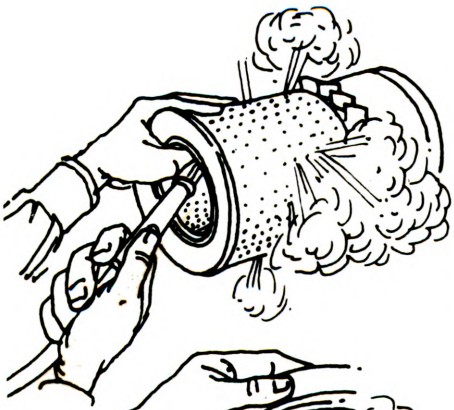
A dirty or clogged air cleaner filter will starve your engine.

It'll cause hard starting, loss of power and a black belching exhaust. The filter must be removed and cleaned at least every 1000 miles or at the vehicle's quarterly service. But if you're riding dusty trails, a daily cleaning is best. If your local SOP calls for daily cleaning, keep an extra element on hand. Insert the clean one while the dirty one is being cleaned. Watch it! There are two types of air cleaners installed in the M113A1, and they are not interchangeable.





The new type - the one with **fins - has slots** in the bottom baffle. The slots **fit over stops in** the container housing and **are locked into** position when you turn the element. Careful - don't damage the fins.

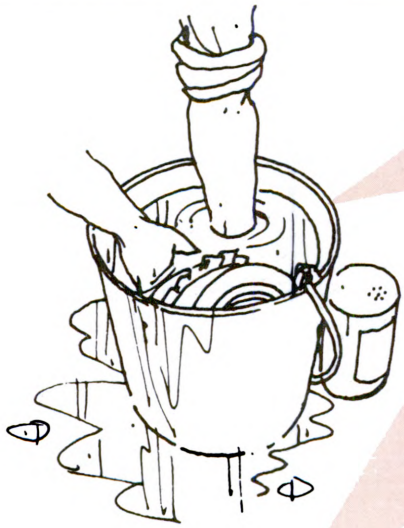


The old type - either end can go **into the** container first. Cleaning element . . . **The** method you use depends on where **you are** and the available time.

The quickest way - Blow out the **element** with compressed air (maximum **100PSI).** Blow from inside out first, then the **outside** and again from the inside. Careful, **not too** close or you might damage the **fins or** element.



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Next best way - Wash it with a mild detergent and luke-warm water. Rinse with fresh water, shake off or blow off excess water, then let it dry. If necessary, let it set for 24 hours. Never install a wet or damp element. If you can't wait, put in a new element and return the wet one to stock for the next go-round. A wet or damp element can cause trouble.



After cleaning out the container, seat the dry element in place and clamp it to its mount. Make certain all latches are clamped tight.



A good way - Gently tap with the palm of your hand. Shake out as much dirt as possible. Never bang it against the carrier, or on the ends. A crushed element is as good as no element - it'll let dirt into your engine.

After cleaning out the container, seat the element in place and clamp it to its mount. Make certain all latches are clamped tight.

Never use gasoline or solvents to clean or wash the element.

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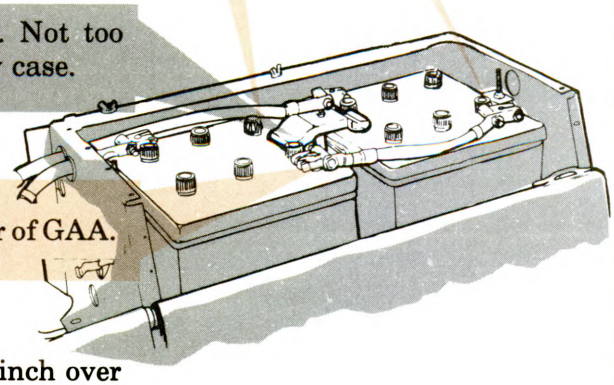
BATTERIES

1. Keep cables tight but don't overtighten - you'll crush 'em. Avoid hard yanks and jerks while testing clamp and cable tightness. This can work them loose.

2. Watch for kinked or crushed cables. Naked cables or terminals must not be touching the metal box.

3. Keep batteries and box clean. Wash with soda and water to neutralize acid corrosion. Dry after rinsing with clean water. Cable grommets must be in place and good. Wash with fresh water often.

4. Keep hold-down brackets tight. Not too tight or you may crack the battery case.



5. Coat terminals with a thin smear of GAA.

6. Electrolyte must be at least 3/8 inch over plates. Never overfill. Fill to split ring level.

7. Use distilled water. Don't have? Use rain or drinking water.

8. *Cold freezing weather* - **Never add water unless the batteries can be fully charged so water will combine with acid and not freeze.**

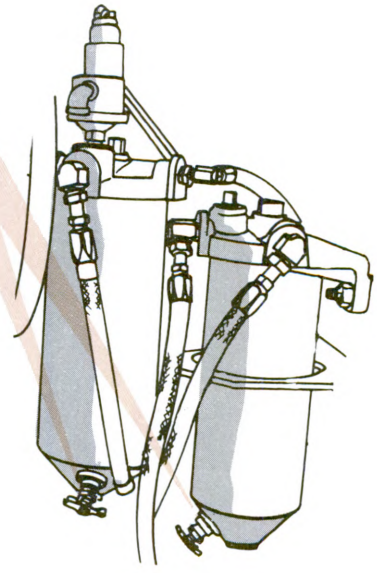
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FUEL FILTERS

Both must be drained daily. Dirty fuel is a No-No in diesel engines. Draining after operation in freezing weather will stop collection of moisture and icing.

1. Open the bottom petcocks and drain about 1/4 pint of fuel from each filter into a container, or until all dirty fuel is out. Then close petcocks.

2. If more than 1/2 pint of dirty fuel is drained from either filter, notify maintenance.



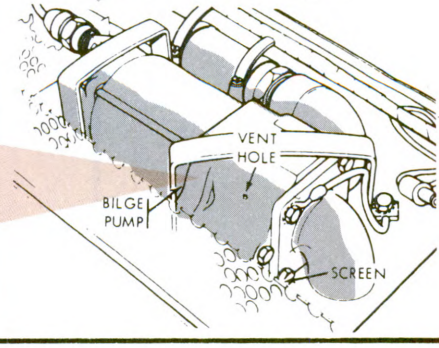
RAMP CABLE AND CYLINDER - This is another daily chore. Lower the ramp, inspect the cable and cylinder for rust, dirt and broken strands. If dirty, clean with oil (OE) and coat with oil (CW). Remove hull rear floor plate to get at the hidden portion of the cable and cylinder.

The cylinder should not be leaking. If it is, mark it up on your DA Form 2404.



RAMP SUMP - Must be checked daily. With ramp down oil must show halfway up in the sight indicator. If not, remove plug with breather attached and add hydraulic oil (OHA).

BILGE PUMPS - These pumps are down deep in the hull where a lot of junk can collect. To protect the pumps there is a screen over the pump intakes. Keep these screens clean and pump's vent hole open at all times. Run a wire into the vent hole to make sure it's free and clear.

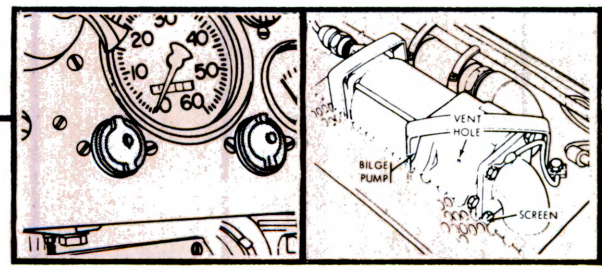


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NOTES

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Section IV.
WATER OPERATIONS



BEFORE ENTERING THE WATER

Bilge Pumps - Turn them on. Both lights should come on and any water in the bilge should discharge, or air should come through the outlets. The screens around pumps must be free of debris and clean. Leave pumps on until after you're finished swimming.

Ramp and Ramp Door - Lock them and make certain the seals are seated firm and tight. See your -10 for correct procedure of checking seals.

Hull Drain Plugs and Access Plates - Make sure they're all seated flush with hull bottom and not tilted.

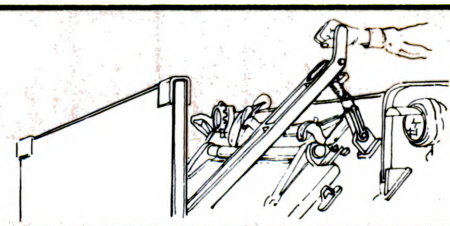


THIS . . . . . NOT THIS

Cargo Troops and Equipment - Distribute your load evenly. Tie down movable items. This helps you maintain a well balanced carrier with a slightly elevated front while afloat. Lopsided distribution of cargo or personnel can swamp the carrier. If the front is lower than the rear, water can ship over the carrier.

Power Plant Door - Lock it down tight. Make certain and tight.

Trim Vane - Swing it forward hard and make certain it locks in place. Give it an extra wiggle and be sure it's locked.

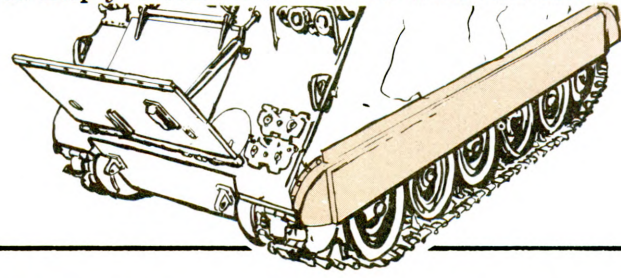


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Hatches - Keep top hatch covers closed (driver's hatch may stay open).



Track Shrouds - Must be installed properly and be in good condition. These shrouds help you control the carrier when it's afloat.



Domelights - Turn them on - if you're not on blackout operations.

SAFETY

Don't fasten seat belts.

Remove all web gear and packs.

Specify an order of exit for the men in the carrier.

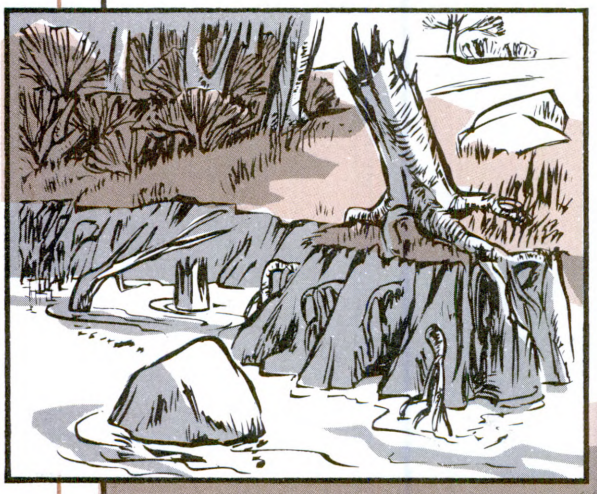
Keep a cool head.

If water rises above floor plates climb to the top deck.

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ENTERING THE WATER

NOT THIS . . .

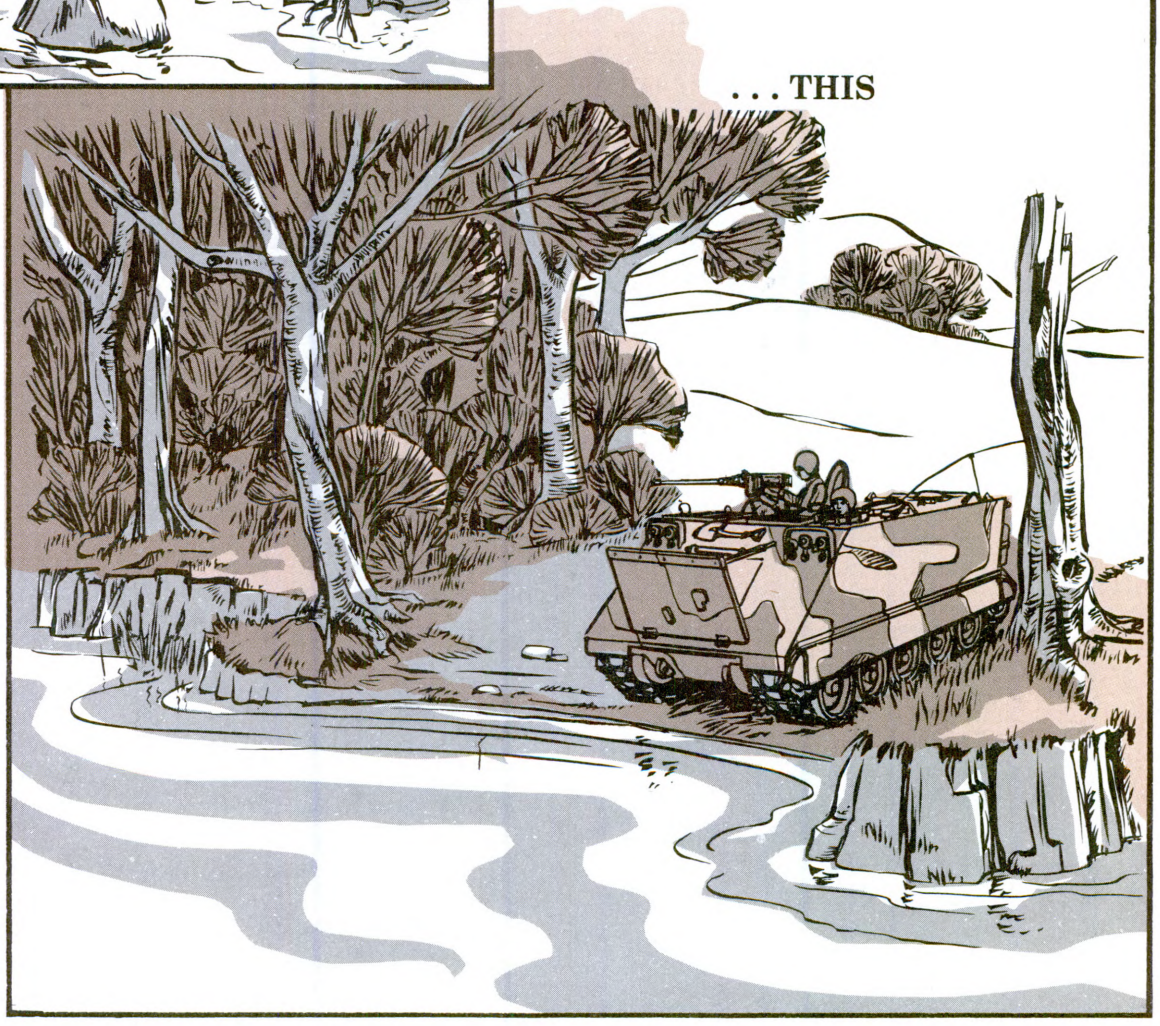


Select a spot that is firm, free of rocks, stumps, and deep drops. Enter head on; not at an angle.

Go in with the shift lever in 1 Range and no faster than 10 MPH.

Be on the ball--if it looks like you'll be swamped, back off if you can. If not, give it the gun to raise the front and get waterborne.

. . . THIS



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DRIVING IN WATER

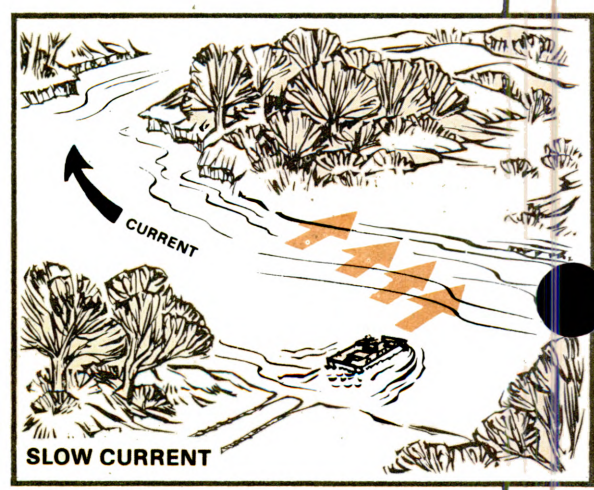
- When in the water, shift to 1-2 Range. Use this range for all water driving except stopping.

- To steer, use the pivot steer levers -- NOT the differential steer levers.

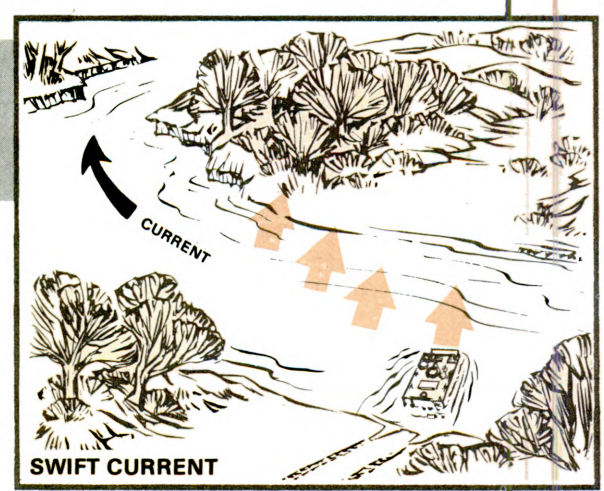
- Maximum speed in water is 2-3 MPH. Speedometer readings are not accurate when afloat. You'll have to guesstimate.

- To keep from overshooting turns, release the pivot steer levers before your turn is complete. Allow momentum of carrier to complete turn.

- To cross a slow-current stream, head straight across and let the current carry you downstream until you reach the other side. If you must exit directly across from the point of entry, head upstream and cross at an angle.

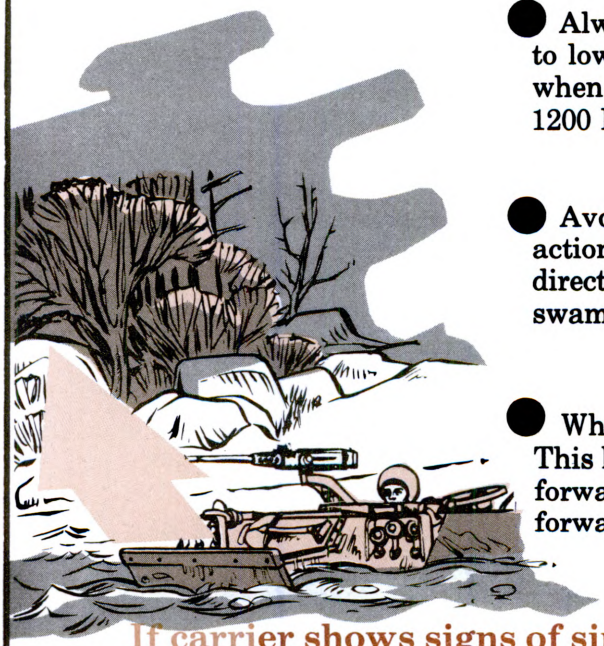


- Avoid crossing swift current streams, but if you must, head carrier diagonally downstream.



- If you hit an underwater obstruction, take it easy. Let up on the gas pedal and pull back on the pivot steer levers to stop the tracks. Then shift to R (reverse) and back off. Don't try to go through obstacles; carrier can roll over or get hung up.

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- Always keep your engine revved up. Drop to low idle only to shift and to brake. Even when in N keep the engined revved to about 1200 RPMs.

- Avoid sudden braking or deceleration action as this will pitch the carrier in the direction of travel. A deep forward pitch can swamp the engine compartment.

- When swimming, the carrier nose is raised. This keeps the bilge water from reaching the forward pump. Slow down or stop and let the forward bilge pump catch.

If carrier shows signs of sinking, step on the gas and head for the nearest shore.

STOPPING IN WATER

- Plan and start your stops long before your stopping point is reached. Keep the carrier's momentum in mind and work with it.

- Let up on the gas pedal, pull back on the pivot steer lever and stop the tracks.

- When tracks have stopped, release the steer levers and shift in R (reverse) and step down on the gas pedal.

- Let up on the gas pedal when the carrier's forward motion has stopped.

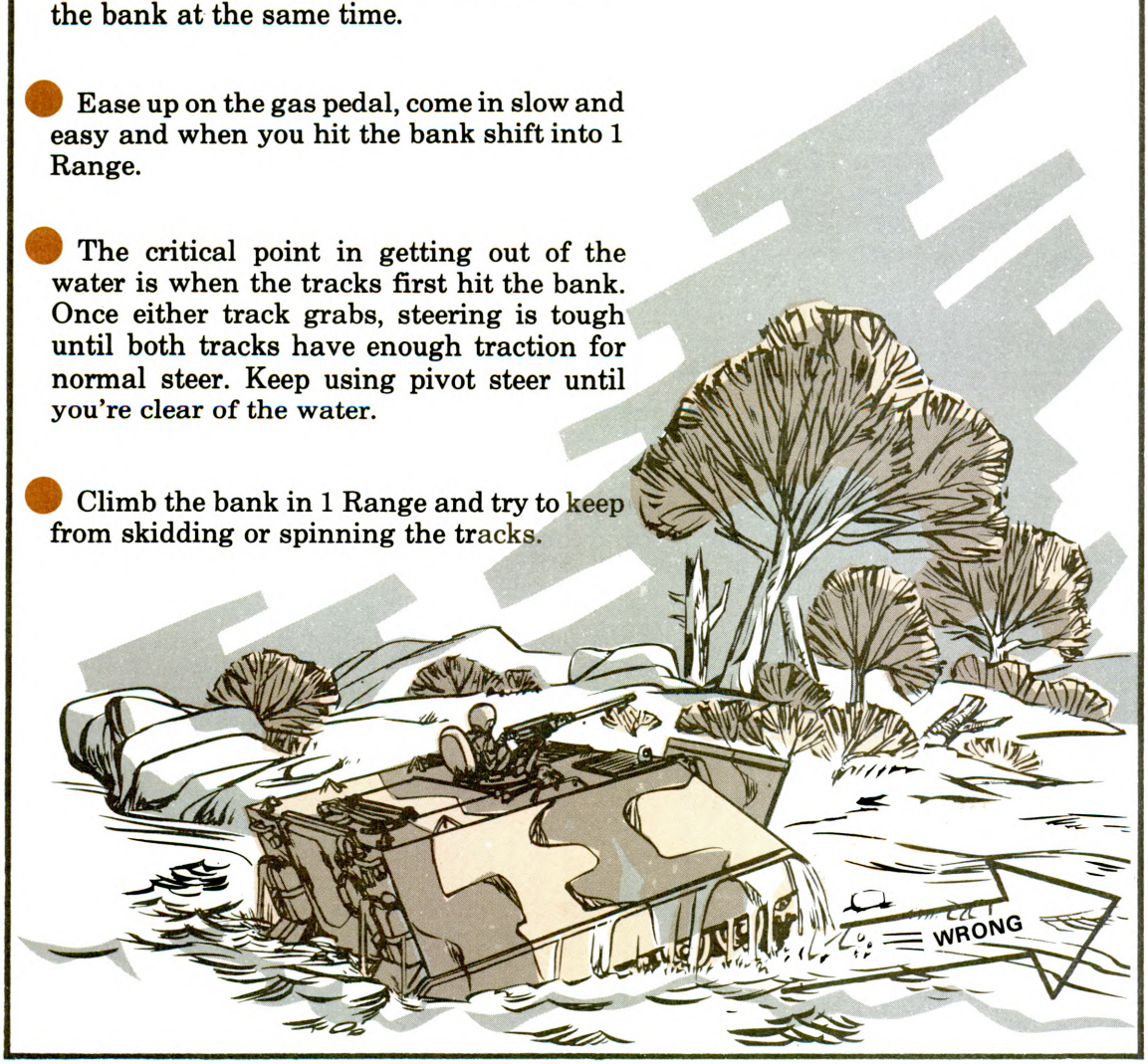
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BACKING IN WATER

Use R (reverse) as the main driving force. To brake or slow down shift into 1-2 Range after stopping tracks.

LEAVING THE WATER

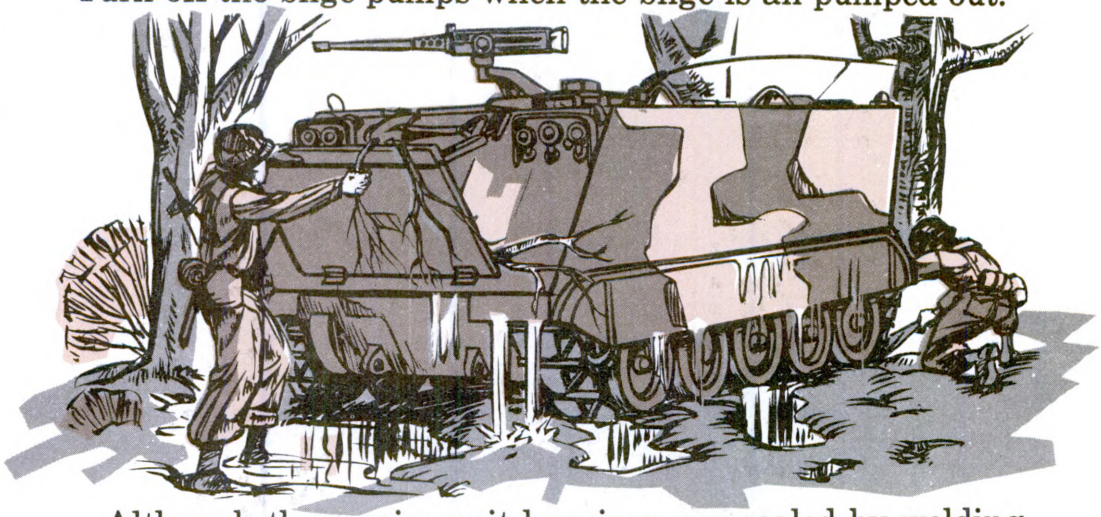
- Look for a clear bank. Clear of obstacles, not mussy or muddy. Maneuver your carrier to come in straight-on so both tracks will hit the bank at the same time.
- Ease up on the gas pedal, come in slow and easy and when you hit the bank shift into 1 Range.
- The critical point in getting out of the water is when the tracks first hit the bank. Once either track grabs, steering is tough until both tracks have enough traction for normal steer. Keep using pivot steer until you're clear of the water.
- Climb the bank in 1 Range and try to keep from skidding or spinning the tracks.



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CHECK

Look over the trim vane for damage and clear out any debris. Turn off the bilge pumps when the bilge is all pumped out.



Although the carrier unit housings are sealed by welding, some water will get through. So the first chance you get . . . **especially if you've been in salt water do this . . .**

DRAIN AND FLUSH OUT HULL

Front - Remove two front hull and final drive drain plugs. Slope the carrier front down and to the right side. Open the power plant door and wash down all components. But take it easy. Never use a high pressure water hose. Never saturate electrical components. Wash off all unpainted areas. Then slope the carrier to the left and flush out the final drive and hull plates. After all the water is out, put the plugs back.

Rear - Elevate the front of the carrier. Remove the hull drain plugs. Lower the ramp, remove three floor plates and wash out the hull. When clean and drained, put the drain plugs and floor plates back in.

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OIL AND HYDRAULIC FLUID

Check the oil in the engine, transmission, final drives, differential, transfer case and ramp hydraulic tank. If you see any evidence that water entered, drain and flush the component that's water contaminated. Clean or replace the component's filter before refilling.

SUSPENSION

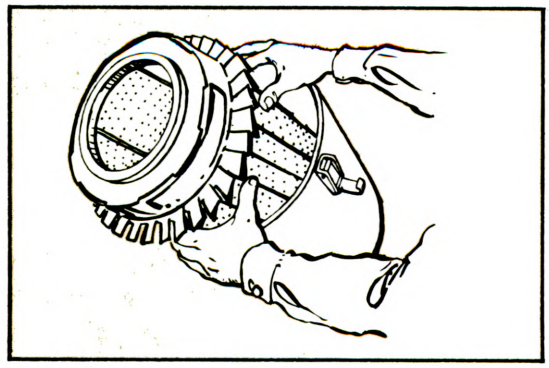
Check all support arm bearings, road wheel hubs and idler wheel hubs for evidence of water. If any looks milky, it's water-contaminated. Drain and flush and refill with fresh oil. On hubs that take grease, shoot in fresh GAA until clean grease comes out the relief valve.

ELECTRICAL CONNECTIONS AND RECEPTACLES

If water-contaminated, wash off with fresh water and dry with an air hose.

FUEL FILTERS AND AIR CLEANER

Remove the air cleaner housing. If you find any evidence of water, clean and dry the cleaner element. Drain fuel filters. If any water shows, clean all fuel filters.



CONDENSATION

The sudden cooling of warm interior parts or housings may cause sweating. If possible expose the carrier to warm air to dry up the condensation.

ALUMINUM AND MAGNESIUM PARTS

When exposed to salt water for extended periods of time their life may be shortened, so keep an eye on them. Have them replaced when they show signs of failure.

PERISCOPES

If moisture has entered, turn them over to your maintenance people for repair promptly.

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Section V.
ACTIONS WHEN A CARRIER IS DISABLED

You must know what to do if your carrier becomes disabled and can no longer move under its own power on the battlefield. Most platoons have SOPs that tell what actions to take. These SOPs normally give the following guidance.

- If you are moving forward (attack or movement to contact) and are not in immediate danger from the enemy, try to identify the problem. If you think you can fix it in a short time, put out local security and fix it. If you can't fix it, leave the TL/gunner and the driver and crossload your men and equipment onto other APCs of the platoon. The platoon leader must report the location of disabled APCs to the company maintenance section. After the carrier is repaired, it will rejoin the platoon.

- If the platoon is attacking and your carrier is disabled while you are in contact with the enemy, everybody on the APC dismounts if the APC stopped in an exposed position. Leave the driver and TL/gunner near the carrier to secure it, and continue with the mission. If the carrier stopped in a covered position, the carrier team can remain mounted and use the cal .50 machinegun to support your attack.

- If the carrier is disabled when the platoon is moving away from the enemy but is not in immediate danger, dismount local security and try to solve the problem. If it cannot be fixed quickly, the platoon leader must tell the company commander and ask permission to either make the carrier unserviceable, to destroy it, or to hook up to another APC and tow it.

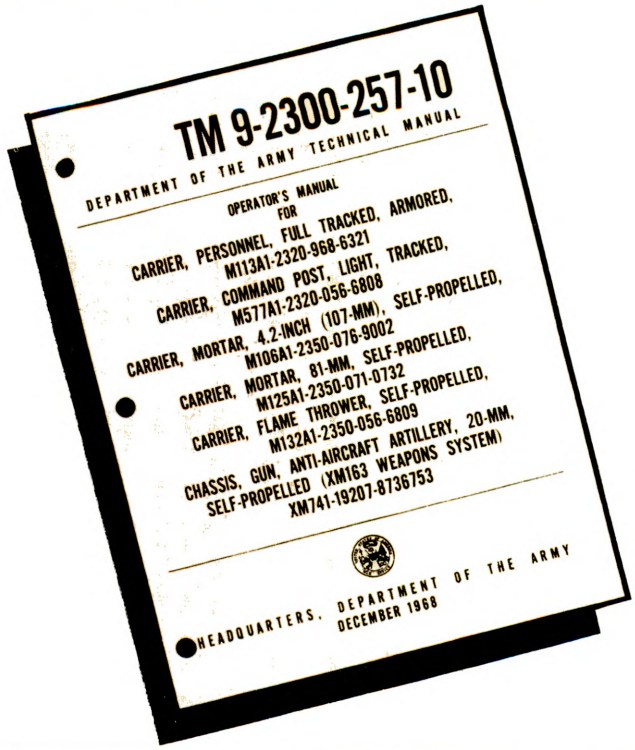
- If the carrier is disabled when the platoon is moving away from the enemy, and the enemy is close behind or firing at you, the platoon leader informs the company commander who will probably tell him to crossload men and equipment and destroy the carrier.

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If you are told to make the carrier unserviceable, secure your weapons, radios, and equipment and take the following action:

- **Remove the fuel line from the fuel filter to the engine block.**
- **Remove the shaft between the transmission and differential.**
- **Break a track and remove at least two shoes.**

If you are told to destroy the carrier, secure your weapons and equipment and destroy the carrier as prescribed in chapter 5 of the operator's manual of the vehicle. Basically, there are two efficient ways to destroy an APC--burn it or blow it up.


TM 9-2300-257-10

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL
FOR
CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A1-2320-968-6321
CARRIER, COMMAND POST, LIGHT, TRACKED, M577A1-2320-056-6808
CARRIER, MORTAR, 4.2-INCH (107-MM), SELF-PROPELLED, M106A1-2350-076-9002
CARRIER, MORTAR, 81-MM, SELF-PROPELLED, M125A1-2350-071-0732
CARRIER, FLAME THROWER, SELF-PROPELLED, M132A1-2350-056-6809
CHASSIS, GUN, ANTI-AIRCRAFT ARTILLERY, 20-MM, SELF-PROPELLED (XM163 WEAPONS SYSTEM) XM741-19207-8736753

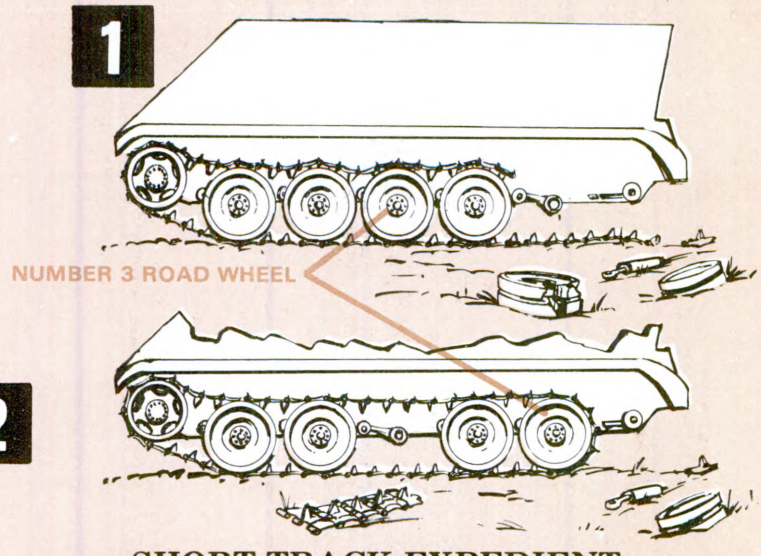
HEADQUARTERS, DEPARTMENT OF THE ARMY
DECEMBER 1968

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Section VI.
RECOVERY TECHNIQUES

DAMAGED SUSPENSION COMPONENTS

An APC with a damaged track, rear road wheel arm, and idler wheel can be operated by using the short track expedient. Companion components of the damaged suspension parts, such as the rear shock absorber, track adjuster, road wheel arm, and torsion bar, must be removed. To give the APC better stability, the number three road wheel with arm is moved to the rear road wheel position. As the idler wheel is absent, remove sufficient track blocks to permit the tracks to be connected. Avoid high speeds when operating short track APCs.



SHORT TRACK EXPEDIENT

ADDITIONALLY . . .

Your M113A1 may get bogged down. Recovery know-how will get you moving again. A wise driver will keep a copy of FM 20-22 (Vehicle Recovery Operation) in his publications bag.

SO

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Keep yourself posted on M113A1 recovery tactics -- especially these points.

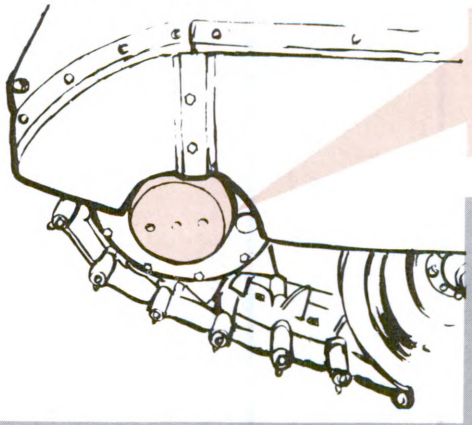
- Turn engine off and set the brakes before you attach rigging to your APC or to a pulling vehicle.
- Double-check all rigging (hookups, cables, ropes, shackles, anchors, hooks, couplings, etc.) before you start pulling.
- Keep onlookers and guides out of the danger area while the rigging lines are under tension. Minimum safe distance is the length of the longest line.
- Close the driver's hatch during recovery or while being towed by cable.
- Scrape up, sweep up, or cover up (with sand, dirt, gravel, etc.) fuel oil and other spilled flammables.
- Keep smokers, open flame, and vehicle exhaust away from an overturned vehicle.

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TO HELP YOU

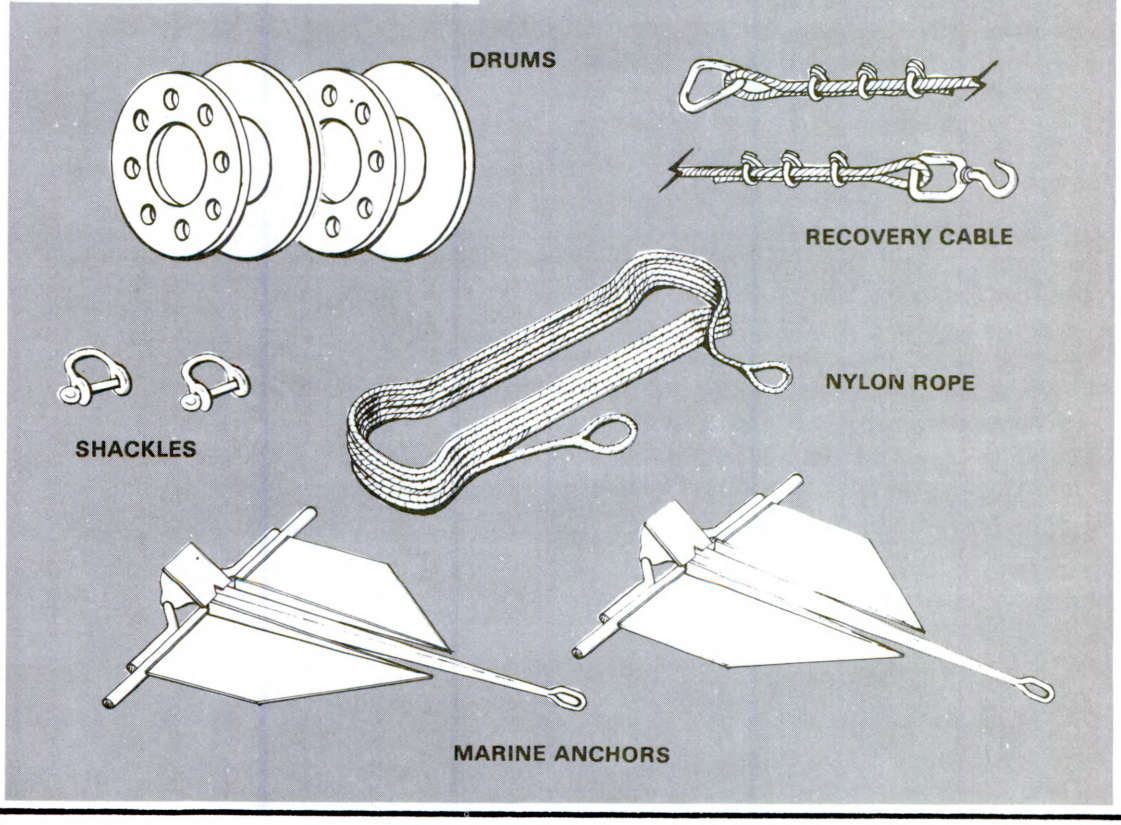
CAPSTAN KIT

If your APC has a capstan kit FSN 2540-933-3570, it will ease your APC over steep or slippery banks and through boggy areas. If you don't have one, it can be ordered by your supply sergeant using the Federal Stock Number shown above.



The kit has two adapters (permanently bolted to the hub of each drive sprocket). Use only bolts that go with the kit.

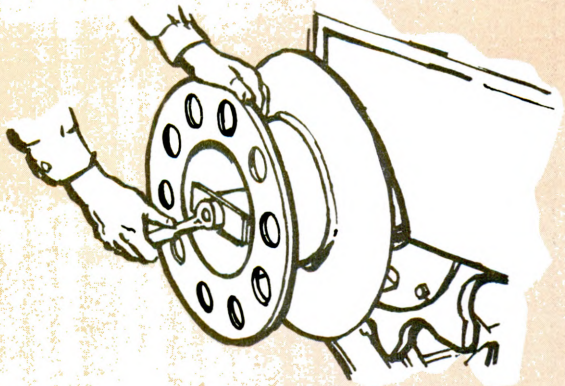
Two capstan drums which you bolt on each adapter **(with a T-bolt)** when the kit is needed. Four 100-foot and two 50-foot lengths of 1-inch nylon rope (with shackles). Two marine anchors (with recovery cables).



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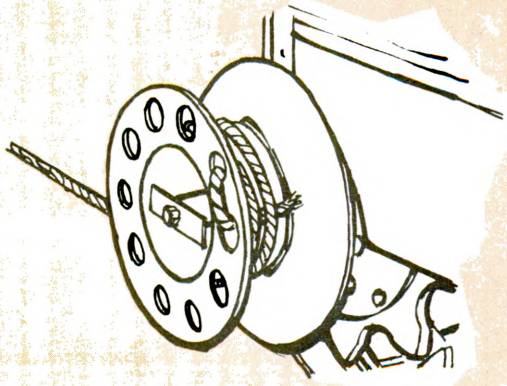
TO USE THE KIT

Bolt the drums to the adapters.



Before you install the drums make sure your carrier's steering levers are in locked position.

Thread a length of rope through the outside flange of each drum. Make two or three turns over the end of the rope to anchor it. Be sure the rope extends from under the drums.



Set the marine anchors in line with the drums. Press them into the ground to give them a good start.

Eliminate all rope slack before you attach the ropes to the anchors.

Apply vehicle power slowly until the tracks are turning equally. Keep a slow, steady, equal pull so the anchors will dig themselves in evenly.

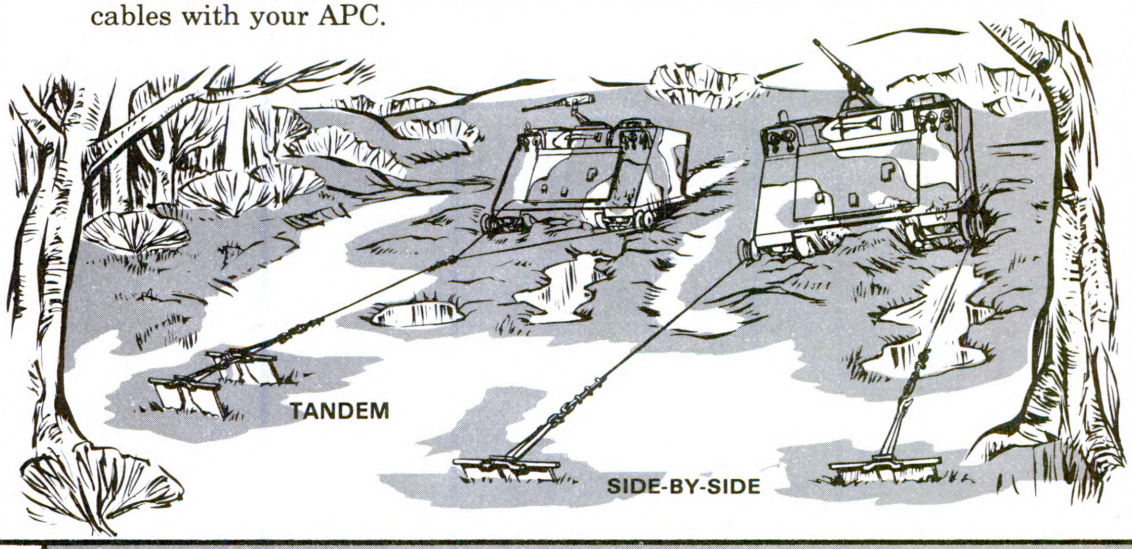


As the drums winch the ropes your APC will move out.

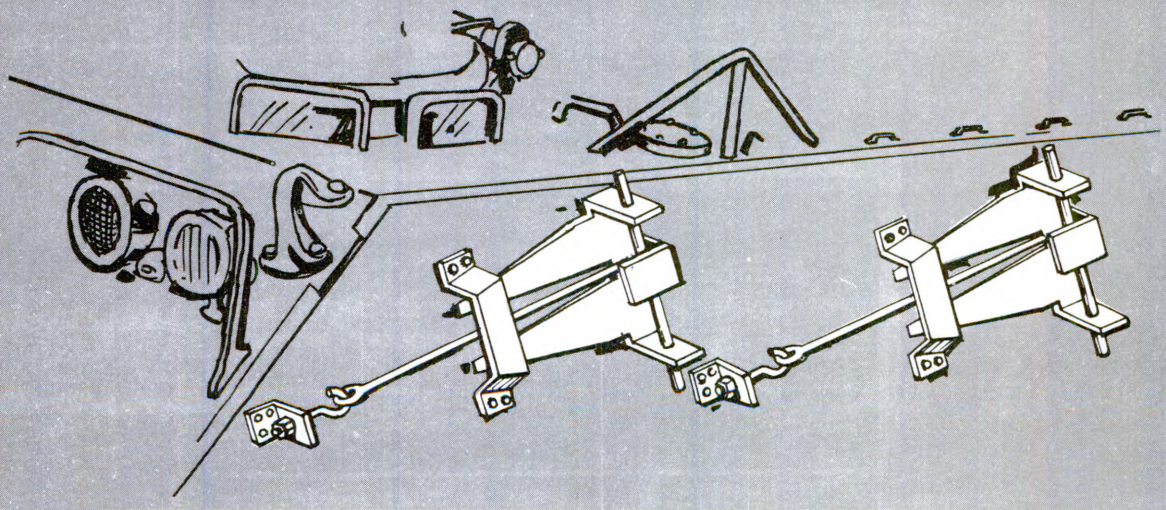
Use a guide to make sure the rope winds in OK.

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You can see the anchors side-by-side or in tandem. But they may go completely underground **(several feet)** so be sure to attach their recovery cables before you start pulling. To recover the anchors pull the recovery cables with your APC.



The kit is stored on the top right rear of your APC – except for the anchors. They go on the left side of your carrier.

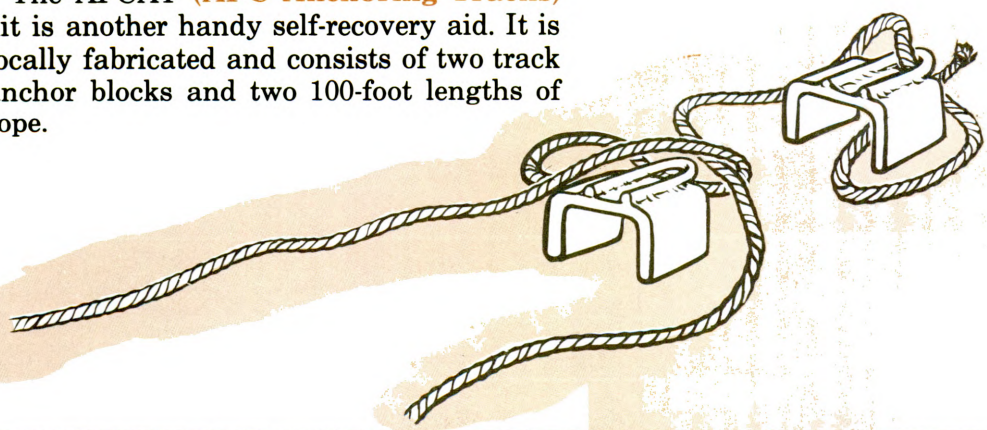


See TM 9-2300-257-10 *(December 1973)* for more on the capstan kit.

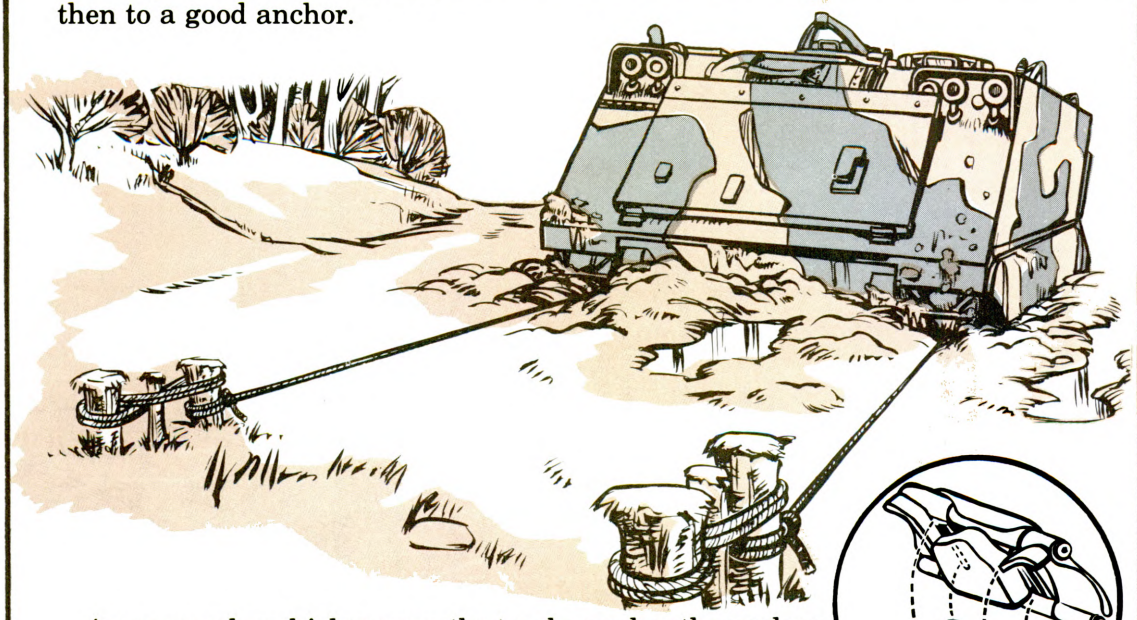
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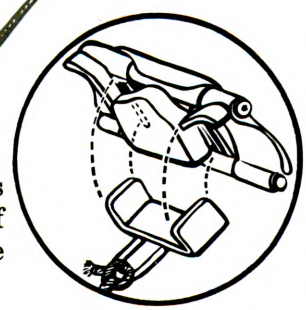
APCAT Kit

The APCAT (APC Anchoring Tracks) kit is another handy self-recovery aid. It is locally fabricated and consists of two track anchor blocks and two 100-foot lengths of rope.



Attach an anchor block on each track and tie the rope to the loops on the blocks and then to a good anchor.





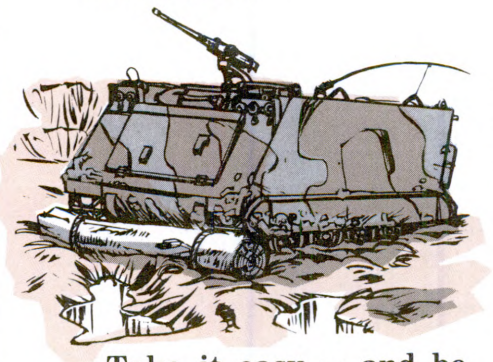
As you apply vehicle power, the tracks anchor themselves to the blocks, and the APCAT will move you out the length of your track. You can untie the blocks and retie them to the ropes with a half-hitch.

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OTHER WAYS

Carriers often get hung up on stumps, rocks, ridges, or mire.

To get unstuck find a big heavy log, long enough to span the width of the carrier. Anchor it to both tracks at the front with a tow cable. Attach the cable in such a way it won't hang up under the hull when the log travels rearward under the track. Also put the hook on the outside so it can be easily disconnected.



Take it easy -- and be careful to stop before the log reaches the rear fenders.

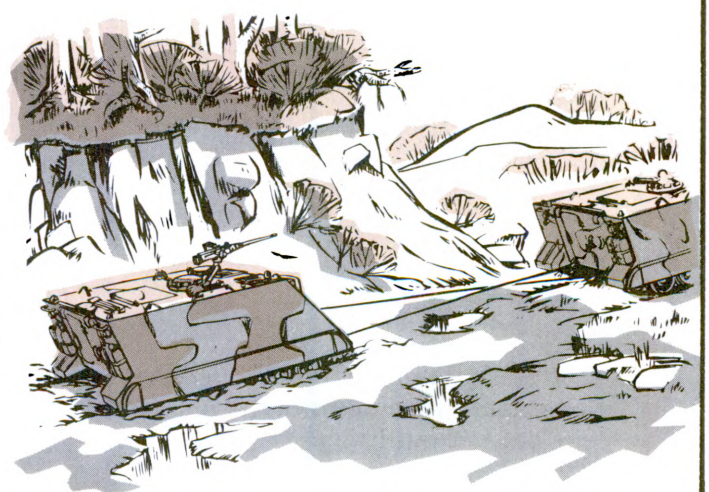
If your belly hang-up is other than mire, you can do the same with two tow cables or chains. Connect the cables **(or chains)** together with a tow hook and attach them to both tracks by passing the ends through the tracks from the outside. When you move forward, the cable will move under the tracks, contact the obstacle, anchor the tracks, and move the carrier off the hang-up.

REMEMBER --

Stop before the chain or cable gets to the rear fender. One or two APCs can also rescue your vehicle out of some sticky spots.

Use crossed cables between the vehicles. That keeps the cables out of the tracks and keeps the vehicles' unit up.

One cable between two towing vehicles is okay, but a two-cable hookup will keep the towing vehicles lined up better, and it will help to equalize the pull.



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In some muddy bogs you can use brush, logs, and other natural growth to make a roadbed to help your APC crawl through.

CAN'T DO

If you can't get unstuck, over or around obstacles, call for the recovery experts and their special recovery equipment, or dig into your copy of FM 20-22 for exact information on your recovery problem.



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APPENDIX B
WEAPONS

To succeed in combat, you must know the characteristics and capabilities of your weapons. This appendix describes the weapons with which the platoon will train and fight.

DEFINITIONS AND DISCUSSIONS

- *Fire Distribution.* There are two ways in which direct fire is placed on target: **(1) Concentrated fire** is directed at a specific point, e.g., an entire fire team or squad could fire at the same bunker. It requires a high degree of accuracy. **(2) Distributed fire** is in depth and width so that an area target is effectively covered, e.g., a squad leader wants to fire at a woodline--he fires his weapon to mark the center of the target area, men on his left fire to the left of his tracers, men on his right fire to the right.

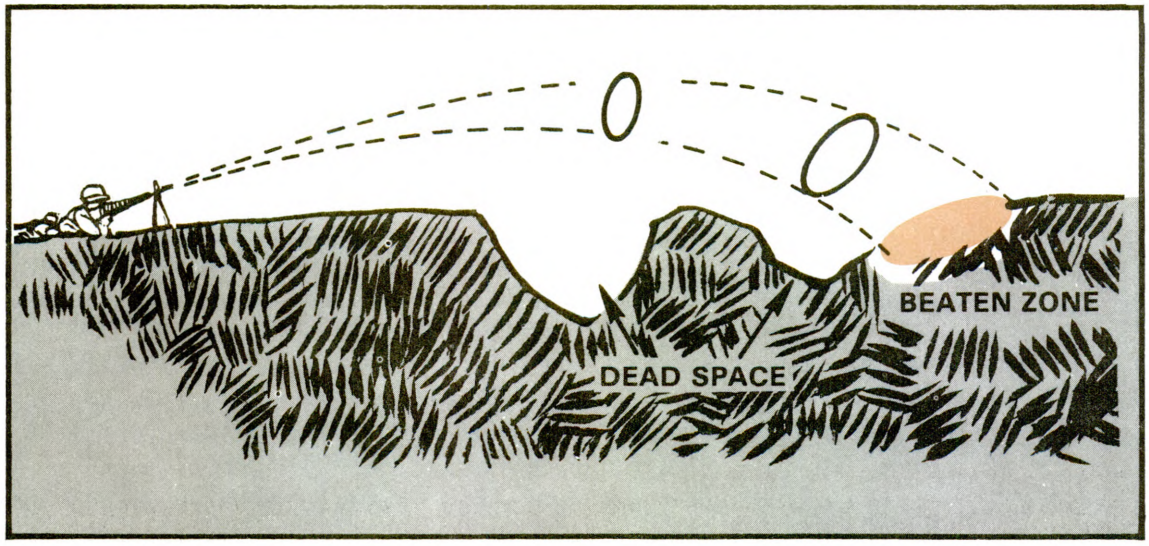
- *Suppressive Fire.* Suppression of enemy weapons prevents the enemy from shooting aimed or observed fire, thereby enabling friendly troops to move into position to destroy him. Enemy weapons are suppressed when they cannot hit friendly troops. Enemy infantry and vehicles can be suppressed by almost any type of fire of sufficient accuracy and volume. Any fire that forces tanks or personnel carriers to "button up" reduces their effectiveness. Accurate suppressive fire increases opportunities for friendly maneuver without great losses. Suppressive fire is an important part of any combat operation.

- *Dead Space.* Areas within the maximum range of a weapon that cannot be covered by fire or observation.

- *Beaten Zone.* The ground on which the cone of fire falls.

- *Cone of Fire.* The cone-shaped pattern formed by the paths of a group of shots fired from a gun with the same sight setting. The cone is formed because the shots follow different paths as a result of gun vibration, variations in ammunition, wind changes, etc.

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CLASSIFICATION OF FIRE.

Rifle and machinegun fire **(semiautomatic and automatic)** is classified with respect to the ground and the target.

Fire with respect to target:

Frontal - fire delivered at a right angle to the front of the target.

Flanking - fire delivered into the flank of the target.

Oblique - when the long axis of the beaten zone is at an oblique to the long axis of the target.

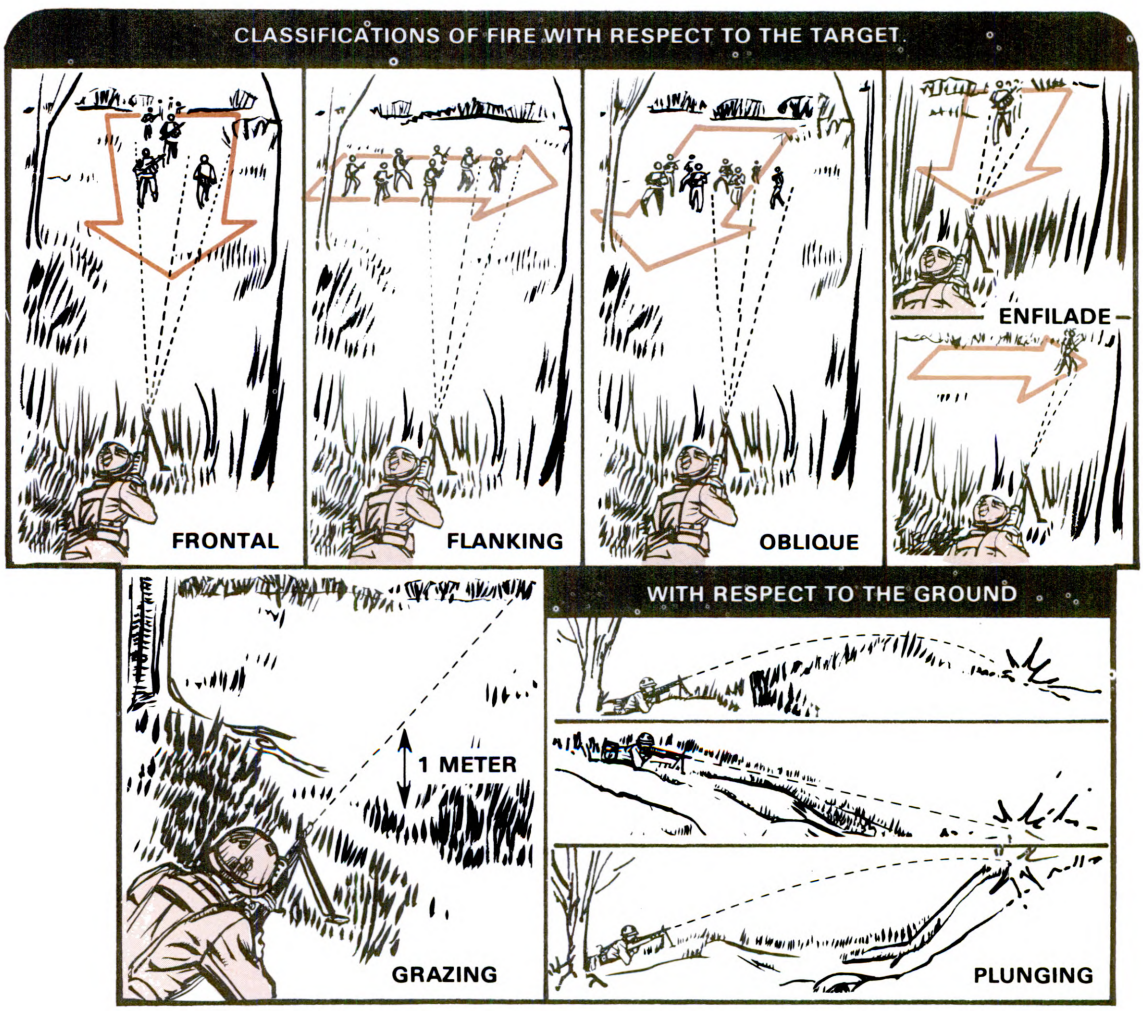
Enfilade - when the long axis of the beaten zone is the same as (enemy in single file) the long axis of the target. This type of fire is either frontal or flanking (enemy on line) and is the most desirable type of fire with respect to the target because it makes maximum use of the beaten zone.

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Fire with respect to the ground:

Grazing fire is achieved when the center of the cone of fire does not rise above 1 meter from the ground.

Plunging fire is that which the angle of fall of the bullets as they hit the ground is great enough to confine the danger space to the beaten zone. Plunging fire is attained when firing at long range, when firing from high ground to low ground, and when firing into abruptly rising ground.



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Hangfire. Temporary failure or delay in firing. For example, after the trigger bar on a LAW is depressed, the rocket doesn't fire immediately (it should) but does after a few seconds.

Misfire. A complete failure to fire.

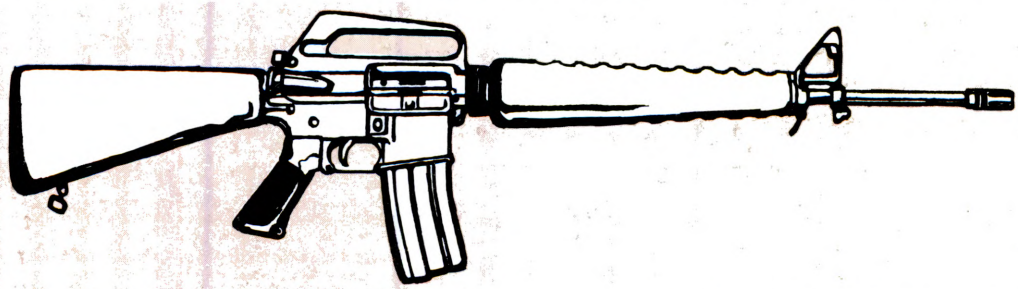
Stoppage. A failure of a rifle or machinegun to extract or eject a spent case or to load or fire a new round.

Immediate Action. The procedure to reduce a stoppage or misfire without trying to determine the cause.

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M16A1 RIFLE

The M16A1 Rifle is a 5.56-mm magazine-fed, gas operated, shoulder fired weapon. It is designed for either semiautomatic or automatic fire through the use of a selector lever. It can be fired from the prone, prone supported, prone bipod supported, kneeling supported, standing and foxhole positions. The firing positions providing the most stability for the rifleman (thereby increasing the probability of target hit) are the prone supported or foxhole supported for semiautomatic fire and the prone bipod supported for automatic fire. The night vision device which can be mounted on the M16A1 Rifle is the AN/PVS-2. The AN/PVS-2 should be mounted, boresighted, and zeroed on the rifle IAW TM 11-5855-203-13 prior to employment at night.



CHARACTERISTICS

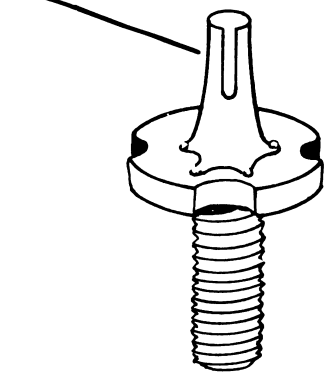
WEIGHT (LOADED)	
(20 rd magazine)	- 7.6 lbs (3.5 Kg)
(30 rd magazine)	- 7.9 lbs (3.6 Kg)
LENGTH (W/O BAYONET)	- 39 in (99cm)
RANGES AT WHICH A 50/50 CHANCE OF TARGET HIT CAN BE EXPECTED:	
RUNNING TARGET	- Less than 200m (probability of hit is 0.3 to 0.4)
STATIONARY TARGET	- 250m
MAXIMUM RANGE OF GRAZING FIRE	- 350m
MAXIMUM RANGE	- 2,653m
CYCLIC RATE OF FIRE	- 700-850 rd/minute
SUSTAINED RATE OF FIRE (SEMIAUTOMATIC)	- 12-15 rd/minute

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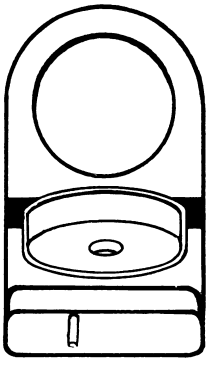
LOW LIGHT LEVEL SIGHT SYSTEM (LLLSS)

The Low Light Level Sight System (LLLSS), commonly called the promethium sight, is a modification of the standard sights on the M16A1 Rifle issued to soldiers in infantry units. It is not a night sight. It allows the rifleman to better attain sight/alinement when visibility is reduced (such as early morning, late evening, or bright starlight or moonlight). During these reduced visibility periods, if a soldier can see the target using the standard daylight vision techniques he should be able to aline the Low Light Level Sights and hit the target. The sight consists of a split post front sight which contains a vial of luminous material, and a modified rear sight that has a larger aperture.

LUMINOUS TIP



FRONT SIGHT



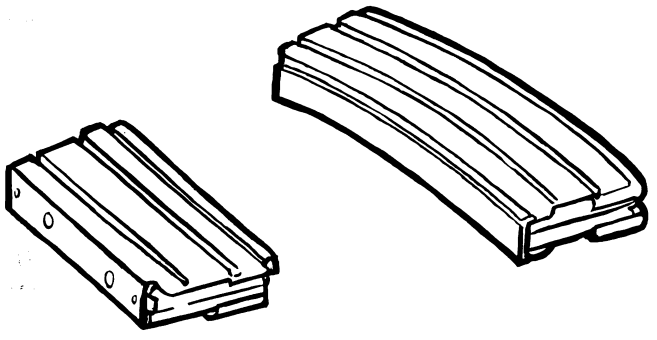
REAR SIGHT

The use of the promethium sight does not require altering any of the standard firing positions.

MAGAZINE LOADING

The 20-round magazine should be loaded with only 16-18 rounds. Loading of additional ammunition may cause damage to the follower spring or jam the follower so that the magazine will not feed the ammunition correctly.

The average 30-round magazine will function properly when fully loaded (30 rds). When received in a unit, they should be issued first to the automatic rifleman.



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IMMEDIATE ACTION

Immediate action to clear a stoppage with the M16A1 Rifle is--

1. *Slap* up on the base of the magazine.
2. *Pull* the charging handle to the rear.
3. *Observe* the ejection port for the ejection of a spent cartridge case or live round.
4. *Tap* the forward assist assembly to insure that the bolt is fully seated.
5. *Release* the charging handle, letting the bolt go forward.
6. *Shoot* the rifle.

CARE AND CLEANING

Rifle. Clean and lightly lubricate with LSA the lugs in barrel extension, bore, and chamber. Clean and lightly lubricate the bolt carrier. Lubricate slide cam pin area, piston rings, outside bolt body, and in bolt carrier key.

CAUTION

Apply only a light coat of LSA to firing pin and firing pin recess.

Use rifle bore cleaning compound (RBC) to clean powder fouling in the upper receiver. Clean outside surface of protruding gas tub with a worn bore brush. Coat all other surfaces with lubricant. Apply a light coat of LSA to buffer, action spring, and inner surfaces of lower receiver extension. Use generous amount inside lower receiver and on all components.

Magazine. Wipe dirt from tube, spring, and follower, then lightly lubricate the spring. Do not keep a magazine loaded with ammunition over an extended period of time or its spring may fail.

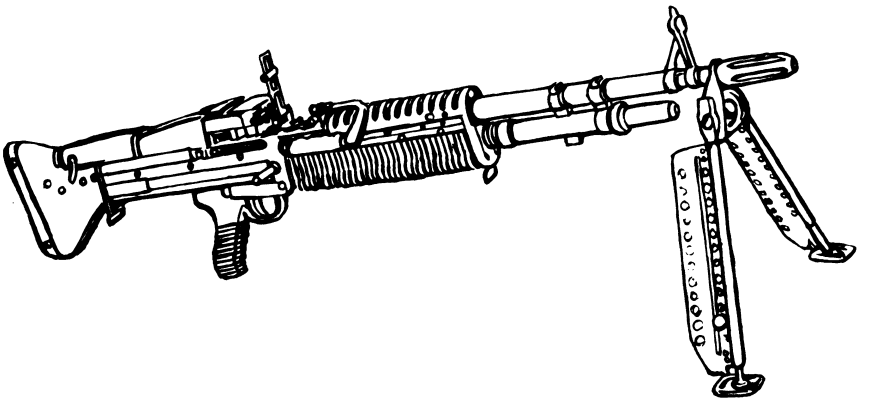
Cleaning Ammunition. Use a clean, dry cloth to wipe dirt and foreign matter from ammunition. Do not coat with oil.

REFERENCES

FM 23-9, M16A1 Rifle and Rifle Marksmanship.
FM 23-12, Technique of Fire of the Rifle Squad and Tactical Application.
TM 9-1005-249-10, Operator's Manual, M16A1 Rifle.
TEC Lesson 939-071-009-F thru 939-071-1121-F.

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7.62-MM M60 MACHINEGUN



The M60 machinegun is belt-fed, gas-operated, and automatic. It is issued with an attached bipod mount and a separate tripod mount. The machinegun can be fired using either mount. Firing from the prone position, using the M122 tripod mount lets the gunner have the most control and the most accuracy. Certain vehicular mounts (such as the pedestal mount on the M151 Jeep) are available for the M60. When the gunner is standing, the machinegun may be fired from the hip, underarm, or shoulder firing position. In infantry units all troops must be trained on the M60 machinegun.

The M60 machinegun is excellent for suppressing ATGM gunners, vehicles, and troops. Its high volume of fire can suppress enemy elements until a maneuver force can get into position to destroy the enemy elements or bypass them. The night vision device to mount on this gun is the AN/PVS-2. The AN/PVS-2 should be mounted, boresighted, and zeroed on the M60 machinegun IAW TM 11-5855-203-13 prior to employment at night. The latest modification to the M60 machinegun barrel locking lever (spring loaded) precludes mounting the AN/PVS-2 on those guns so modified. Not all M60 machineguns have been modified; however a new mounting bracket which will fit both the new and old barrel locking levers is being produced. Platoon leaders designate which weapons will be equipped with the night sight.

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CHARACTERISTICS

WEIGHT	- 43.5 in (110.5cm)
LENGTH	- 23 lbs (10.4 Kg)
MAXIMUM RANGE	- 3,725m
MAXIMUM RANGE OF GRAZING FIRE	- 600m

RANGES AT WHICH A 50/50 CHANCE OF TARGET HIT CAN BE EXPECTED FIRING BURST OF 6-9 ROUNDS:

- 200m for moving point target (bipod mounted)	- 600m for a point target (bipod or tripod)
- 800m area target* (bipod mounted	- 1100m area target* (tripod mounted)

RATES OF FIRE:

SUSTAINED - 100 rds per min RAPID - 200 rds per min

CYCLIC - In excess of 550 rds per min

BASIC LOAD OF AMMUNITION - 600-900 rds

TYPES OF AMMUNITION

- Ball - Tracer - Armor Piercing

TRACER BURNOUT - 900m (approx)

*An area target is defined as the area in size that a fire team would occupy. The beaten zone of the machinegun coincides approximately with the area occupied by the fire team.

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IMMEDIATE ACTION PROCEDURE

If an M60 machinegun stops firing, take the following actions **within 10 seconds:**

1. Cock the gun, observing the ejection port to see if brass, link, or a round is ejected.
2. See that the bolt remains to the rear to prevent double feeding.
3. If brass, link, or a round is ejected, release the bolt handle, chambering another round, relay on the target, and try to fire. If the gun still does not fire, or if brass, link, or a round was not ejected, the weapon must be cleared, and the weapon and ammunition inspected to determine the cause of the stoppage.

CARE AND CLEANING

Use rifle bore cleaner (RBC) and a bore brush to clean the bore. After you have removed all of the fouling in the bore, use the chamber brush and RBC to clean the chamber. When the chamber is clean use dry patches to remove the RBC from both the bore and chamber, then swab them with PL special. Next, clean off the face of the bolt and let it dry. Wipe off the rest of the gun to remove any dirt or bore cleaner that may be present and then lubricate all moving parts with a light coat of LSA.

Insure proper care and use of the barrels.

- In order to prolong the life of the barrels, retain accuracy, and to allow continuous firing for prolonged periods, two barrel assemblies are issued with each gun.

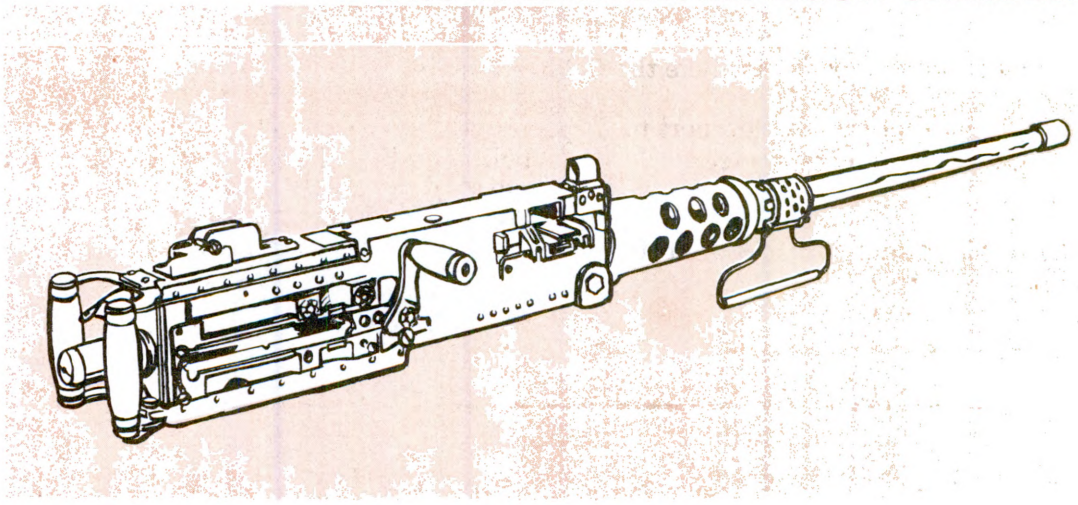
- During continuous firing, the barrels are changed: every 10 minutes when firing at the sustained rate of 100 rounds per minute, every 2 minutes when firing at the rapid rate of 200 rounds per minute, and every minute when firing at the cyclic rate (which exceeds 550 rounds per minute).

REFERENCES

TM 9-1005-224-10, Operator's Manual, M60 Machinegun.
FM 23-67, Machinegun, 7.62-mm, M60.
TEC Lesson 941-071-0079-F thru 941-071-0085-F.

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BROWNING MACHINEGUN CALIBER .50



The caliber .50 machinegun is belt-fed, and recoil operated. It can fire single-shot as well as automatic fire. The primary infantry vehicular mount is the cupola of the M113A1 APC. When used in the ground mode the machinegun is mounted on the M3 tripod mount or the M63 antiaircraft mount. When shooting ground targets from a stationary position, the gun is fired in bursts of 9-15 rounds. When firing at aircraft, a continuous burst is used rather than several short bursts. When firing on the move, long bursts of fire are walked into the target. Enemy ATGM gunners, vehicles, and troops can be suppressed with a heavy volume of fire until a maneuver force can destroy or bypass the opposition. The night vision device which is mounted on the cal .50 machinegun is the AN/TVS-2. The AN/TVS-2 should be mounted, boresighted, and zeroed on the gun IAW TM 11-5855-202-13, prior to employment at night. The platoon leader designates which weapon will be equipped with the night sight.

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CHARACTERISTICS

WEIGHT OF MACHINEGUN	- 84 lbs (38 Kg)
WEIGHT OF TRIPOD	- 44 lbs (20 Kg)
LENGTH OF MACHINEGUN	- 65 in (165.1cm)

MAXIMUM RANGE OF GRAZING FIRE	- 800m
MAXIMUM RANGE	- 6,800m

RANGE AT WHICH A 50/50 CHANCE OF TARGET HIT CAN BE EXPECTED:

TRIPOD MOUNTED FIRING BURST OF 9-15 ROUNDS

- 700m against a man (point target)
- 1000m against an armored target
- 1600m against an area target

CUPOLA MOUNTED STATIONARY VEHICLE FIRING BURST OF 9-15 ROUNDS

- 500m against a man (point target)
- 800m against an armored target
- 1000m against an area target

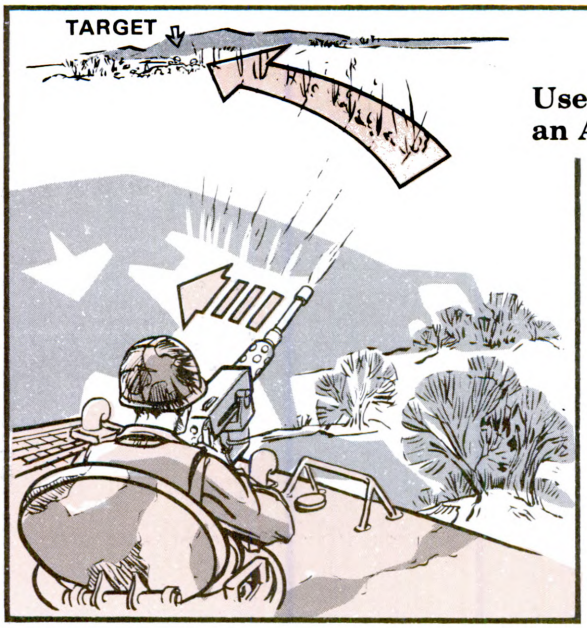
CUPOLA MOUNTED MOVING VEHICLE FIRING BURST OF 15-30 ROUNDS

- 300m against a fire team-size position
- 500m against a squad-size position (probability of hit reduced to 0.3)

RATES OF FIRE	BURST OF FIRE USED IN AIR DEFENSE
SUSTAINED - 40 or less rd/min	- Continuous while target is in range
RAPID - 40 or less rd/min	TYPES OF AMMUNITION - Ball - Tracer - Armor Piercing Incendiary - Armor Piercing
CYCLIC - 450-550 rd/min	TRACER BURNOUT - 2200m (approx)

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FIRING FROM AN APC



Use this technique when shooting from an APC.

- Hold the weapon tightly to the chest.
- Aim (point) slightly low.
- Fire and walk the rounds onto the target.
- Cease fire when the rounds begin going high, and repeat the process.

The gun does not have a safety, so when you are moving keep it half-cocked.

IMMEDIATE ACTION/CLEARING

If the cal .50 machinegun fails to fire, take the following actions:

1. Pull the bolt to the rear and observe for ejection (round or brass ejected).
2. Return retracting slide handle forward.
3. Relay and attempt to fire.

WHEN CLEARING THE CAL .50 MACHINEGUN

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Use the following procedures when clearing the machinegun:

Cold gun.

1. **Place gun in single-shot mode.**
2. **Pull the bolt to the rear.**
3. **Open the cover and remove the ammunition.**
4. **Press the bolt latch release and ride the bolt forward.**
5. **Pull the bolt to the rear.**
6. **Inspect the chamber.**
7. **Press the bolt latch release and ride the bolt forward.**
8. **Close the cover.**

Hot gun.

- **A hot gun is one which has fired more than 150 rounds in 2 minutes.**
- **To clear a hot gun, follow the steps for clearing a cold gun except that you should not pull the bolt to the rear as in steps 2 and 5. Simply press the trigger and fire the gun. This prevents a cook-off outside the chamber.**

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CARE AND CLEANING OF THE CAL .50 MACHINEGUN

- Disassemble the gun into its major groups or assemblies.
- Clean the bore and chamber, but do not oil them.
- Clean all metal parts (thoroughly) and apply a light coat of oil to all metal parts which do not come in contact with the ammunition.

Use rifle bore cleaner to clean the bore. When the bore is clean, dry it and any parts of the gun exposed to the bore cleaner. If you don't plan to use it after cleaning, apply a thin coat of special preservative lubricating oil to the entire gun. If you do plan to use it, don't oil the bore or chamber.

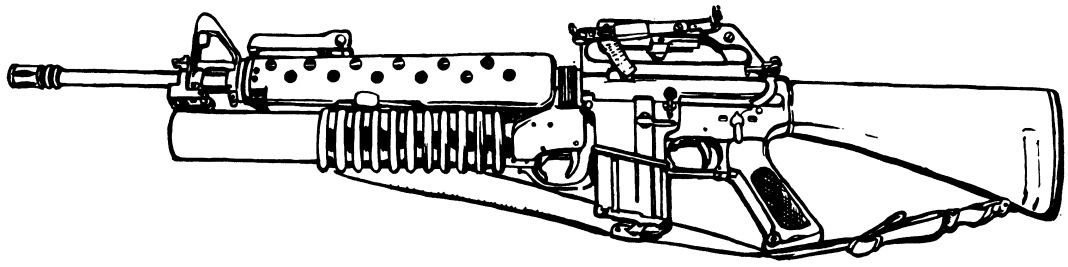
When bore cleaner is not available, hot or cold water can be used (warm or hot, soapy water is best). After using soap and water, dry the barrel and apply a thin coat of special preservative lubricating oil.

REFERENCES

FM 23-65, Browning Machinegun, Caliber .50, HB, M2.
TM 9-1005-213-10, Operator's Manual: Machinegun, Caliber .50, Browning, M2.
TEC Lesson 941-071-0115-F thru 941-071-0119-F.

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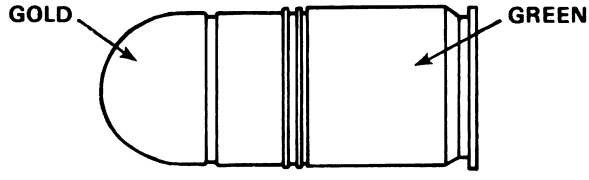
DUAL PURPOSE WEAPON



The Dual Purpose Weapon (DPW) consists of the M203 40-mm grenade launcher attached to an M16A1 rifle. Information on the rifle is in a preceding section. The grenade launcher is a single shot, breech-loaded pump-action weapon which fires a variety of ammunition. The grenade launcher provides a means of both suppressing and neutralizing targets that are in dead spaces of grazing fire weapons. Grenadiers using 40-mm ammunition can suppress or disable enemy armored vehicles until other antitank weapons such as the TOW, Dragon, or LAW can destroy them. This weapon can penetrate concrete, timber, or sandbagged weapon positions or structures found in built-up areas. It has an illumination capability and a signalling capability. The firing positions with the most stability for the gunner (thereby increasing the probability of a hit) are the standing supported and prone supported positions. The night vision device which is mounted on the DPW is the AN/PVS-4. The AN/PVS-4 should be mounted, boresighted, and zeroed on the DPW IAW TM 11-5855-213-10 prior to employment at night. This sight is used for firing both the rifle and the grenade launcher at night.

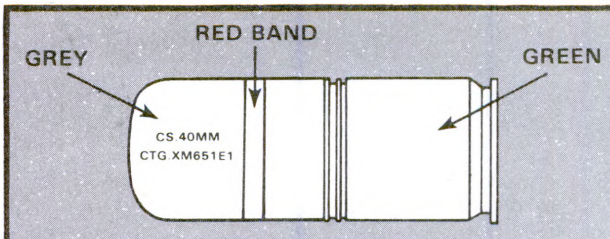
TYPES OF 40-MM AMMUNITION INCLUDE:

M433 High Explosive Dual Purpose (HEDP). This round can penetrate 2 inches (5cm) or armor plate at a range up to 400m. It has a 5m casualty radius against exposed troops.



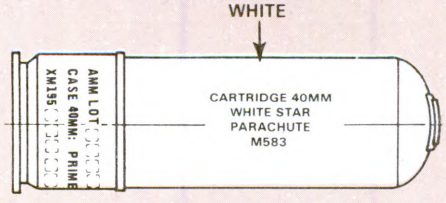
TYPE OF FILLING	RDX
MAXIMUM RANGE	400 METERS
EFFECTIVE CASUALTY RADIUS	**5 METERS**
ARMING DISTANCE	14 TO 28 METERS
PENETRATION	2 INCHES OF STEEL ARMOR AT 0

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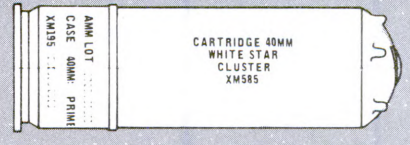
TYPE OF FILLING ..... CS
MAXIMUM RANGE ..... 400 METERS
ARMING DISTANCE ..... 10 TO 30 METERS
BURN TIME ..... 25 SECONDS

M651CS. Effective in driving the enemy from bunker positions or inclosed positions occupied in built-up areas.



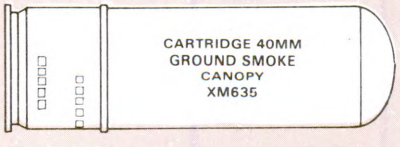
TYPE OF FILLING ..... ILLUMINANT CANDLE
BURST HEIGHT ..... 550 FEET
CANDLE BURN TIME ..... 40 SECONDS

M583 White Star Parachute. An effective signal and a battlefield illuminant that can be placed 300m forward of the squad area illuminating an area 200m in diameter for 40 seconds.



TYPE OF FILLING ..... FIVE ILLUMINANT CANDLES
BURST HEIGHT ..... 550 FEET
CANDLE BURN TIME ..... 7 - 11 SECONDS

XM585 Star Cluster. Red, white, and green used for signalling. Caution - The green star cluster may appear white in bright sunlight.



TYPE OF FILLING ..... SMOKE
BURST HEIGHT ..... 350 FEET
BURN TIME ..... 60 - 90 SECONDS

XM635 Ground Smoke. Used for spotting locations; not used for screening. Available in red, yellow, and green.

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CHARACTERISTICS

WEIGHT LOADED (M16A1 and M203)	- 11 lbs (4.98 Kg)
LENGTH	- 39 in (99cm)

40-MM GRENADE LAUNCHER, M203

RANGES AT WHICH A 50/50 CHANCE OF TARGET HIT CAN BE EXPECTED:

AREA TARGET (FIRE TEAM SIZE)	POINT TARGET
- 350m	- 200m

MAXIMUM RANGE	MINIMUM SAFE FIRING RANGES (HE & TP)	
	TRAINING	COMBAT
- 400m	- 80m	- 31m

MINIMUM ARMING RANGE *	- 14-28m*

BASIC LOAD FOR GRENADIER

40-mm GRENADES	5.56-mm BALL
- 140 rds	- 36 rds

* This must be considered in close-in firing such as in towns to insure round will explode.

IMMEDIATE ACTION

Combat

In combat, should a misfire occur with the grenade launcher:

- **Suppress the target using the M16A1 rifle part of the weapon by firing one magazine in the semiautomatic mode.**
- **Open the breech of the M203 and gently remove the 40-mm round.**

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- **After the round has been removed, inspect it to see if the round or the firing mechanism is defective. First examine the primer to see if it has been dented. If the primer has been dented, immediately reload the weapon with another round and resume firing.**
- **Keep the bad round separate from other ammunition.**
- **If the primer has not been dented, the firing mechanism is at fault. The round may be reloaded and fired after the cause of the failure to fire has been corrected.**

Training

Should a misfire occur in training:

- **Delete the first step above.**
- **Shout "MISFIRE" and wait 30 seconds before extracting the misfire round.**
- **Follow steps above as you would in combat.**

CARE AND CLEANING

The grenade launcher must be cleaned after it has been fired because firing produces deposits of primer fouling, powder ashes, carbon, and metal fouling. These deposits may collect moisture and promote rust if not removed.

Cleaning materials.

Use RBC to clean the bore of the launcher and protect it from corrosion.

Any dry cleaning solvent that does not contain acid can be used for cleaning the launcher of dirt, grease, oil, or corrosion preventives.

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LUBRICANTS

- Military lubricant MIL-LL-46000A (LSA) is used for lubricating the launcher at temperatures of -35° and above.

- Lubricating oil, Arctic weather MIL-L-141078 is used at temperatures below 0° F.

Cleaning the launcher and ammunition.

Bore. Attach a clean, dry rag to the thong and thoroughly moisten the rag with bore cleaner. After pulling the rag through several times, attach the bore brush to the thong and pull it through the bore several times. Repeat, using dry rags inspecting the rag each time. Finally, pull a lightly oiled (LSA) rag through the bore to leave a light coat of oil inside the barrel. When cleaning the bore, the bore brush and rags should be pulled from the breech end to the muzzle end.

Breech insert. Clean the face of the breech insert retainer with a patch and bore cleaner. Remove the bore cleaner with dry rags, and then oil the face of the breech lightly.

All other parts. Use a brush and dry rag to clean all other parts and surfaces. Apply a light coat of LSA to the exterior of the launcher after cleaning. For cleaning the rifle portion of the launcher, see the section on M16A1 rifle.

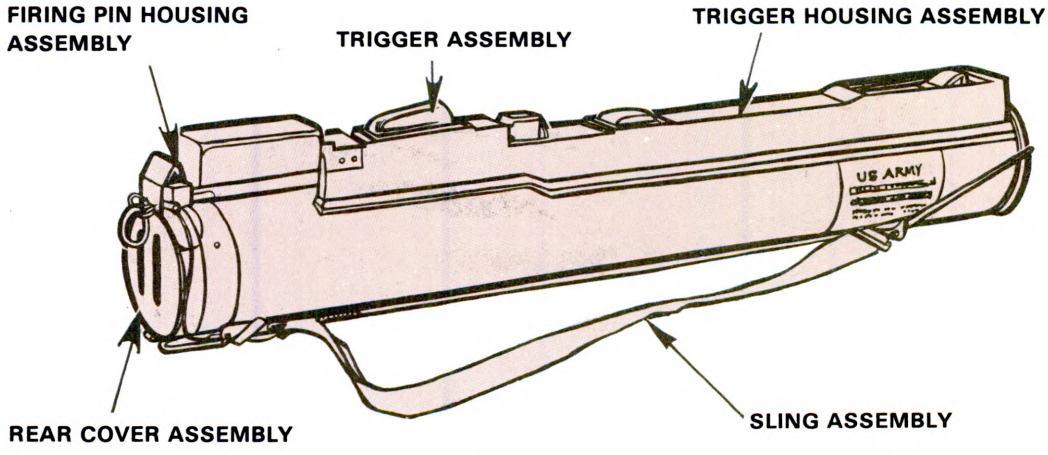
Ammunition. Wipe any dirt or grime from the ammunition with a dry cloth. If ammunition is corroded, turn it in to the ammunition point. Do not oil ammunition.

REFERENCES

FM 23-31, 40-mm Grenade Launcher M203 and M79.
TM 9-1010-221-10, Operator's Manual: 40-mm Grenade Launcher, M203.
TEC Lesson 940-071-0086-F thru 940-071-0088-F.

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M72A2 LIGHT ANTITANK WEAPON (LAW)



The LAW is a self-contained unit consisting of a 66-mm HEAT rocket in a disposable fiberglass and aluminum launcher tube. Its light weight coupled with its ability to penetrate more than 20cm of armor, gives you a weapon which can be readily employed by all of your soldiers on enemy armor, bunkers, or other hardened targets out to a range of 200 meters. The firing positions providing the most stability for the gunner (thereby increasing the probability of target hit) when firing the LAW are the standing supported, prone, and prone supported positions. The night vision device which is mounted on the M72A2 LAW is the AN/PVS-2. The AN/PVS-2 should be mounted and boresighted on the M72A2 LAW IAW TM 11-5855-203-13, prior to employment at night.

CHARACTERISTICS

WEIGHT (COMPLETE)	- 5.2 lbs (2.36 Kg)
LENGTH (CLOSED)	- 26 in (66cm)
LENGTH (EXTENDED)	- 35 in (89cm)

VELOCITY	(145 mps @ 21°C)	- 475 fps @ 70°F

RANGES AT WHICH A 0.5 PROBABILITY OF TARGET HIT CAN BE EXPECTED:

STATIONARY	- 200m	MOVING	- 150m
MINIMUM ARMING RANGE	- 10m	ARMOR PENETRATION	- 8 in = (20cm =)

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RANGE DETERMINATION

The probability of hitting a target with the M72A2 LAW is significantly increased if the gunner knows the range to the target. The following methods can be used to determine range: rangefinders, measurement of the distance by map inspection, intersection using compasses, pair and sequence firing method, pacing, use of direct fire weapons such as machineguns, and visual range estimation. Visual range estimation is the least desirable method due to its inaccuracy. After the ranges to probable target locations have been determined, they should be recorded on a range card for ready reference.

METHODS OF ENGAGEMENT

There are four methods of engagement with the M72A2 LAW. They are: single, sequence, pair, and volley firing.

Single Firing.

In single firing, a target is shot by one man, firing one LAW, with no succeeding shots. This method should be used only at very short ranges--50 meters or less. Beyond this range, one soldier firing a single LAW at a target is relatively ineffective because the chances of a first round hit/kill are relatively low.

Sequence Firing

In sequence firing, the target is shot by only one gunner who is equipped with two or more LAWs. Before firing, he should extend several launchers. After firing the first LAW, the gunner observes the impact of the round. If he gets a hit, he should continue to fire using the same sight picture until the target is destroyed. If the first round misses, he should adjust the range and lead of succeeding rounds until he hits the target. The gunner continues to fire until the target is destroyed. One gunner having two or more LAWs prepared constitutes sequence firing regardless of whether a target hit is achieved with the first round.

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Pair Firing.

In pair firing, two or more gunners, equipped with two or more LAWs engage a target. Each gunner inspects and prepares several LAWs. The gunners exchange information when engaging a target. The first gunner seeing the target identifies it, announces the estimated range and lead he will use (Example: TANK, 150 METERS, FAST TARGET), and fires. The second gunner announces a revised estimate of range and lead (if appropriate), and fires. The gunners continue exchanging range and lead information until one gets a hit. Once the range and lead have been determined, all gunners, on command, shoot the target until it is destroyed. Two or more gunners who have prepared two or more LAWs and who exchange information will constitute pair firing, regardless of whether a target hit is achieved with the first round. Under ideal conditions pair firing is preferred over sequence firing as it permits the gunners to get target hits faster, i.e., gunners firing the subsequent shots can be ready to fire as soon as the previous round impacts, whereas in sequence firing, the gunner must get another LAW, determine a sight picture again, and fire.

Volley Firing.

In volley firing, a target is shot **simultaneously** by more than one gunner, each gunner firing one or more LAWs. Shots are fired on command or predetermined signal (Example: TANK, 150 METERS, FAST TARGET, VOLLEY FIRE, READY, AIM, FIRE) until the target is destroyed. Each gunner prepares two or more LAWs. Volley firing is used **only** when the range and lead to the target have been determined. It can be a result of pair firing after a target has been hit, or after the range has been calculated by pacing, using range finders, maps, or target reference points. The volley method is desirable because more rounds are fired at a target at one time. This will increase the probability of hitting it.

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The preferred methods of engagement are pair and volley fire. Pair firing has the advantage of having two or more gunners track the target simultaneously. A miss by the first gunner will cause the second round to be shot quickly with the revised estimate of range and lead. A high volume of antitank fire can be achieved in the minimum amount of time by using volley fire. If the conditions are such whereby pair or volley firing cannot be implemented, use the sequence firing method. One gunner firing two or more LAWs can produce a volume of antitank fire on the target. Finally, there will be situations when only single firing can be used. A well trained gunner can hit and kill a target with a single LAW if it is at a close range (50 meters or less).

Regardless of the method of engagement used, the closer the target, the better the chance for a first round hit. In all instances, the gunner's point of aim should be the center of mass of the target. Tanks are hard to kill with frontal LAW fires. Their most vulnerable spots are the top and rear. The sides of the tank can also be penetrated by LAW.

IMMEDIATE ACTION HANGFIRES AND MISFIRES

If a LAW fails to fire, it may be either a hangfire or a misfire. As the gunner cannot distinguish between a hangfire and a misfire, he must treat any failure to fire as a hangfire and take this action--

- **Immediately resqueeze the trigger bar.**
- **Return the arming handle to safe.**
- **Remove the LAW from the shoulder, collapse and re-extends (KEEPING HIS HANDS CLEAR OF THE FRONT AND REAR TUBE OPENINGS).**
- **Arm the LAW, aim and fire.**
- **If the LAW again fails to fire, return to safe, remove from shoulder, collapse the tube (this prevents the firing mechanism from functioning) and discard.**

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NOTE

Do not leave an intact LAW on the battlefield; the enemy may use the rocket or explosive.

TRAINING MISFIRE PROCEDURE

1. **Immediately resqueeze the trigger bar.**
1. **Announce misfire.**
1. **Wait 10 seconds, keeping the weapon pointed on target.**
1. **Return safety handle to the SAFE position.**
1. **Take launcher off the shoulder.**
1. **Keep the launcher pointed downrange for 1 minute.**
1. **Depress the detent and collapse the launcher.**
8. **Re-extend the launcher to the fire position.**
8. **Check backblast area.**
10. **Place the launcher on the shoulder, move trigger safety handle to the ARM position, aim, and try to fire. If the launcher fails a second time, repeat the first five steps. Do not collapse the launcher a second time, but call EOD to dispose of the complete unit (in training), or dispose of it in accord with your unit SOP.**

CARE AND CLEANING

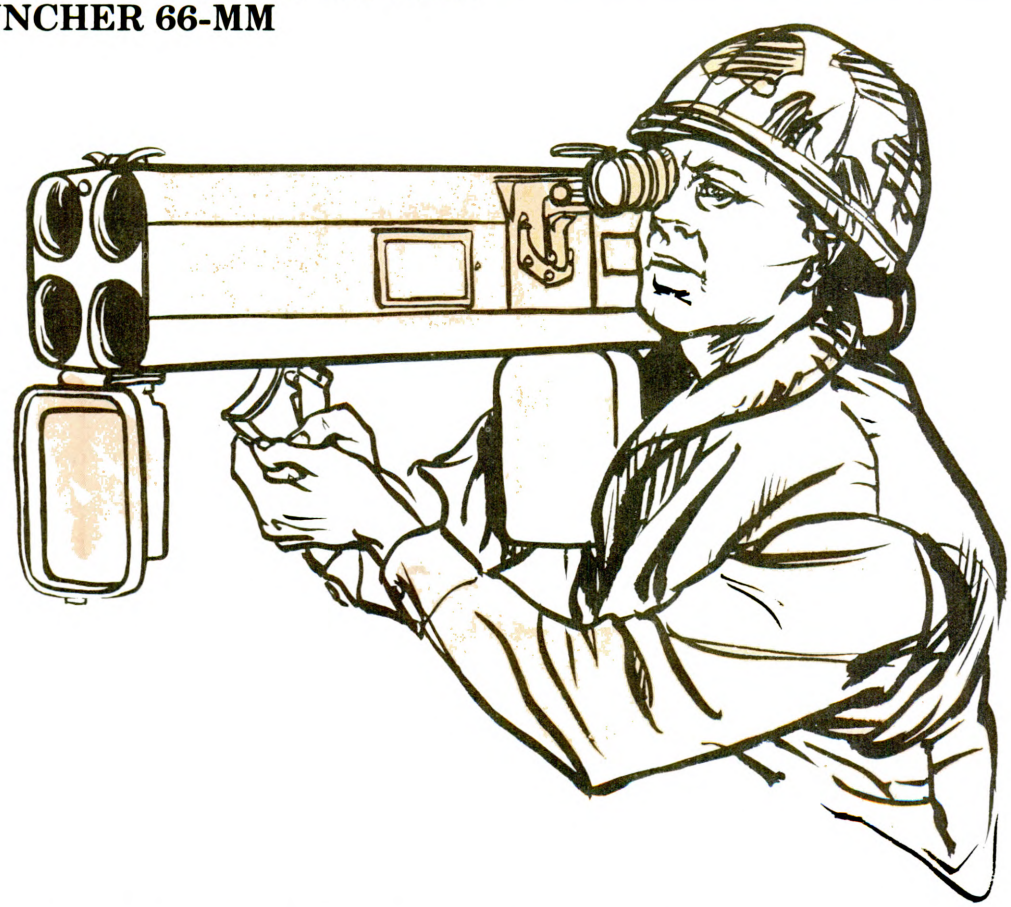
No maintenance is required for LAW beyond keeping the exterior clean and seeing that it doesn't get dented or bent. Before employing the LAW, check it to see that it is safe to fire. If it is dented badly, don't try to use it.

REFERENCES

FM 23-33, 66-mm HEAT Rocket M72A2, and M72.
TM 9-1340-214-10, 66-mm Light Antitank Weapon (LAW) System M72A1 and M72A2.
TM 9-1340-214-12, Operator and Organizational Maintenance Manual, 66-mm Light antitank Weapon System M72 Series.
TM 9-1340-203-20, Rocket Launcher, M190 with Subcaliber 35-mm Practice Rocket, M73.
TEC Lesson 948-071-0005-F thru 948-071-0006-F.

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M202A1 MULTISHOT ROCKET LAUNCHER 66-MM



The M202A1 Rocket Launcher is a lightweight, four tube, 66-mm rocket launcher which is aimed and fired from the right shoulder in the standing, kneeling, or prone position. The launcher is capable of firing from one to four rockets semiautomatically at a rate of one rocket per second and of being reloaded with a new clip of four rockets. The brilliant splash of the bursting incendiary warhead makes it an excellent weapon to suppress RPG and Sagger missile firing sites. When it impacts near enemy armored vehicles, it will normally make them "button up". The most stable position from which to fire the M202A1 Rocket Launcher is the standing supported position. When firing from the foxhole, there are two limiting factors. First, overhead cover can limit the elevation of the launcher and therefore the range. Second, when elevating the launcher, insure that the rear of the launcher is outside the fighting position so that the backblast is not deflected at the gunner. There is no night vision device for the M202A1 Rocket Launcher.

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CHARACTERISTICS

WEIGHT (LOADED)	- 26.6 lbs (12.1 Kg)
LENGTH (CLOSED)	- 27 in (68.5cm)
LENGTH (EXTENDED)	- 35 in (88.9cm)

RANGES AT WHICH A 50/50 CHANCE OF TARGET HIT CAN BE EXPECTED:

AREA TARGET (FIRE TEAM SIZE)	POINT TARGET
- 500m	- 200m stationary vehicle or uncovered position - 50m bunker aperature

MINIMUM ARMING RANGE	BURSTING RADIUS OF ROCKET WARHEAD
- 6-13m	- 20m

COMBAT MISFIRE PROCEDURES:

Squeeze the trigger four times after the last misfired rocket to clear the weapon of rockets including the one which has misfired. If this clears the weapon, remove the empty clips and inspect the launcher before firing again. If this does not clear it, place the trigger safety in the SAFE position, keeping the weapon pointed toward the enemy, lower it from your shoulder and place it on the ground, resting on the front and rear dust covers.

Grasp the side of one clip tube and remove the clip latch to separate the firing pin mechanism from the clip. If separation does not occur, carefully insert a blade between the firing pin mechanism and clip manifold and apply pressure to get at least 1-inch separation.

Grasp the side of one clip tube and remove the rocket clip, do not use the bail handle. Place the rocket clip on the ground as far away from your position as practical (50 meters desirable).

Inspect the launcher before loading again.

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TRAINING IMMEDIATE ACTION:

In training, shout "MISFIRE." Keep the launcher pointed at the target.

Squeeze the trigger four times after the last misfired rocket to clear the launcher of rockets including the one which misfired. If this clears it, remove the empty clip and inspect the launcher before firing again.

If this does not clear the weapon, place the trigger safety in the SAFE position and keep the weapon on the shoulder pointed downrange for 1 minute.

Keeping the weapon pointed downrange, lower it from the shoulder and place it on a firm surface, resting on the front and rear dust covers.

Remove the clip latch to separate the firing pin mechanism from the clip.

Grasp the side of one clip tube, depress the rocket clip release button, and remove the rocket clip.

Place rocket clip on ground away from launcher.

Dispose IAW unit SOP.

CARE AND CLEANING

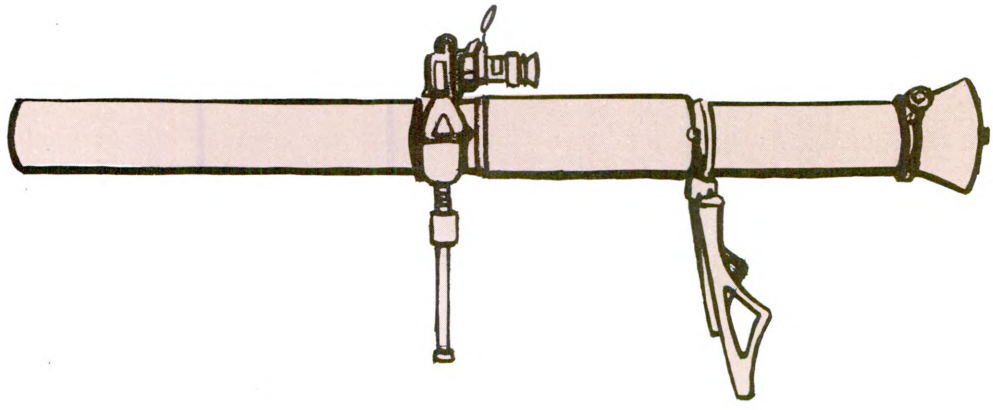
No maintenance is required other than keeping it clean and see that it doesn't get dented or bent.

REFERENCES

TM 3-1055-456-12, Operator's and Organizational Maintenance Manual: Launcher, Rocket: 66-mm, 4-Tube, M202A1.

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M67 90-MM RECOILLESS RIFLE



The M67 90-mm recoilless rifle (RCLR) is a lightweight, breech loaded, single fire, portable, crew-served weapon which can be employed in both antitank and antipersonnel roles. It can be fired from the ground using the bipod and monopod or from the shoulder. The firing position which provides the greatest stability (and therefore best hit probability) is the prone position. The AN/PVS-2 is the night vision device which is mounted on the 90-mm RCLR. The AN/PVS-2 should be mounted, boresighted and zeroed IAW TM 11-5855-203 prior to employment at night.

CHARACTERISTICS

WEIGHT (COMPLETE WITH SIGHT) - 37.5 lbs (22 Kg)	MAXIMUM RANGE (APPROX) - 2,100 meters
LENGTH - 53 in (135cm)	ARMING RANGE - 30 to 35 meters

RANGE AT WHICH A 50/50 CHANCE OF HIT CAN BE EXPECTED:

- 300m stationary target
- 200m moving target

TELESCOPE, M103A1 FIXED FOCUS, 3 POWER MAGNIFICATION, 10° FIELD OF VIEW.

AMMUNITION:

- High explosive antitank
- Cannister (antipersonnel)
- Target Practice

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IMMEDIATE ACTION - MISFIRES

The procedures for handling a 90-mm RCLR which has misfired are:

Combat Misfire:

- Resqueeze trigger.
- Assistant gunner removes round and reloads with a new round.

Training Misfire:

- Gunner calls MISFIRE. (Shouting "misfire" applies only to training).
- The loader repeats MISFIRE and waits 1 minute.
- The loader unlocks and then closes the breech and calls UP. The gunner tries to fire.
- Should the rifle again fail to fire, the gunner calls MISFIRE.
- The loader repeats MISFIRE and waits 1 minute.
- The loader opens the breech and unloads the round, being careful to catch the round as it is extracted.
- The loader loads another round and the gunner tries to fire.

CARE AND CLEANING

The crew is responsible for cleaning, inspecting, and lubricating the RCLR as outlined in TM 9-1015-223-12 and FM 23-11.

REFERENCES

FM 23-11, 90-mm Recoilless Rifle, M67
TM 9-1015-223-12, Operator and Organizational Maintenance Manual for 90-mm Recoilless Rifle, M67.

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M47 DRAGON, MEDIUM ANTITANK WEAPON (MAW)



The Dragon is a command-to-line-of-sight guided missile system which is a man-portable, shoulder-fired, medium antitank weapon (MAW). The missile is launched from a smooth bore, fiberglass tube, recoilless launcher. It is automatically and continuously guided along the gunner's line of sight by a sensor device which tracks the missile's course and transmits correcting signals via a wire link. The Dragon has two major components, the tracker and the round. The round is the expendable part of the system and has two major parts, the launcher and the missile, which are packaged together at the factory for handling and shipping. The launcher serves as the handling and carrying container and the tube for firing the missile. The tracker is the reusable part of the system. It is designed for fast, easy detachment from the round.

CHARACTERISTICS

WEIGHT (CARRY)	- 31.9 lbs (14.5 Kg)
WEIGHT (TRACKER)	- 6.8 lbs (3.1 Kg)
WEIGHT (ROUND)	- 25.2 lbs (11.4 Kg)
LENGTH	- 45.5 in (115.4cm)
DIAMETER	- 11.5 in (29.2cm)

MINIMUM RANGE	- 65m	MAXIMUM RANGE	- 1000m

A 70 PERCENT CHANCE OF TARGET HIT CAN BE EXPECTED:

- Over the entire range spectrum of 65-1000m if the target is moving at a speed of 35 kph or less.

TRACKER Electro Optical with 6-power magnification

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IMMEDIATE ACTION
HANGFIRES AND MISFIRES

Combat Situation:

In combat, having squeezed the trigger and had a failure to fire:

1. Resqueeze the trigger.
2. If the missile still fails to fire, track for 15 seconds.*
3. Check the battery for heat.

HOT BATTERY

4. Remove the tracker.
5. Place the round a safe distance away from you.
6. Get another round.
7. Reattempt firing.

COLD BATTERY

4. Reseat the tracker.
5. Reattempt firing.
6. If the round still fails to fire, replace the round.
7. Reattempt firing.
8. If the round still fails to fire, replace the tracker if another is available.
9. Reattempt firing.

*If other friendly troops are near, you may want to announce misfire.

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Training Situation:

In training, having already squeezed the trigger and had a failure to fire:

1. Resqueeze the trigger.
2. If the missile still fails to fire, track for 15 seconds.
3. Announce misfire.
4. Check the battery for heat.

HOT BATTERY

5. Continue to track for 5 minutes.
6. If the missile has not fired, place on ground with warhead downrange.
7. Notify EOD, wait 30 minutes.
8. After 30 minutes, remove tracker.
9. Get another round.
10. Fire.

COLD BATTERY

5. Reseat the tracker.
6. Try to fire.
7. Repeat steps 1 thru 4 if fails to fire.
8. If hot, treat as hot battery misfire; if cold——
9. Remove tracker.
10. Leave round pointed downrange.
11. Place tracker on another round.
12. Try to fire.
13. Repeat steps 1 thru 4 if fails to fire.
14. If battery cold, replace tracker.
15. Place new tracker on 1st round and try to fire.

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CARE AND CLEANING

No maintenance is required on the round other than keeping it clean and insuring that it doesn't get dented or bent. The tracker is cleaned and inspected as prescribed in the operator's manual, which is stored in the tracker carrying bag. Make sure that your men know that they should never try to clean the weapon once the tracker is mated to the round.

REFERENCES

TC 23-24, Dragon Medium Antitank Assault Weapon System, M47.
TC 23-24-1, Firing the Dragon from the M113.
TM 9-1425-480-10, Operator's Manual: Dragon Weapon System, M47.

SAFETY WHEN FIRING RECOILLESS WEAPONS

BACKBLASTS

The LAW, M202, 90-mm, and Dragon all have backblasts that can kill if anyone is too close to the rear of the weapon when it is fired. The diagrams below are guidance for the clearances you need to fire these weapons. In each diagram the **danger zone** is the area where the force of the backblast will kill or seriously injure anyone in the area. Even in combat the danger zone must be clear before firing. The **caution zone** is the area where injuries could be caused by flying debris and where noise levels could cause ear damage. Stay clear of this area during training. In combat it may be necessary to position soldiers in the caution zone, but if you do, make sure they wear earplugs and helmets and stay down when the weapon is fired.

FIRING IN BUILDINGS

All of the recoilless weapons which the squad may use in combat can be fired from inside of buildings. However, before you fire a Dragon, LAW, or M202 from inside of a room, make sure that --

- The building is of sturdy construction--concrete or stone is best.

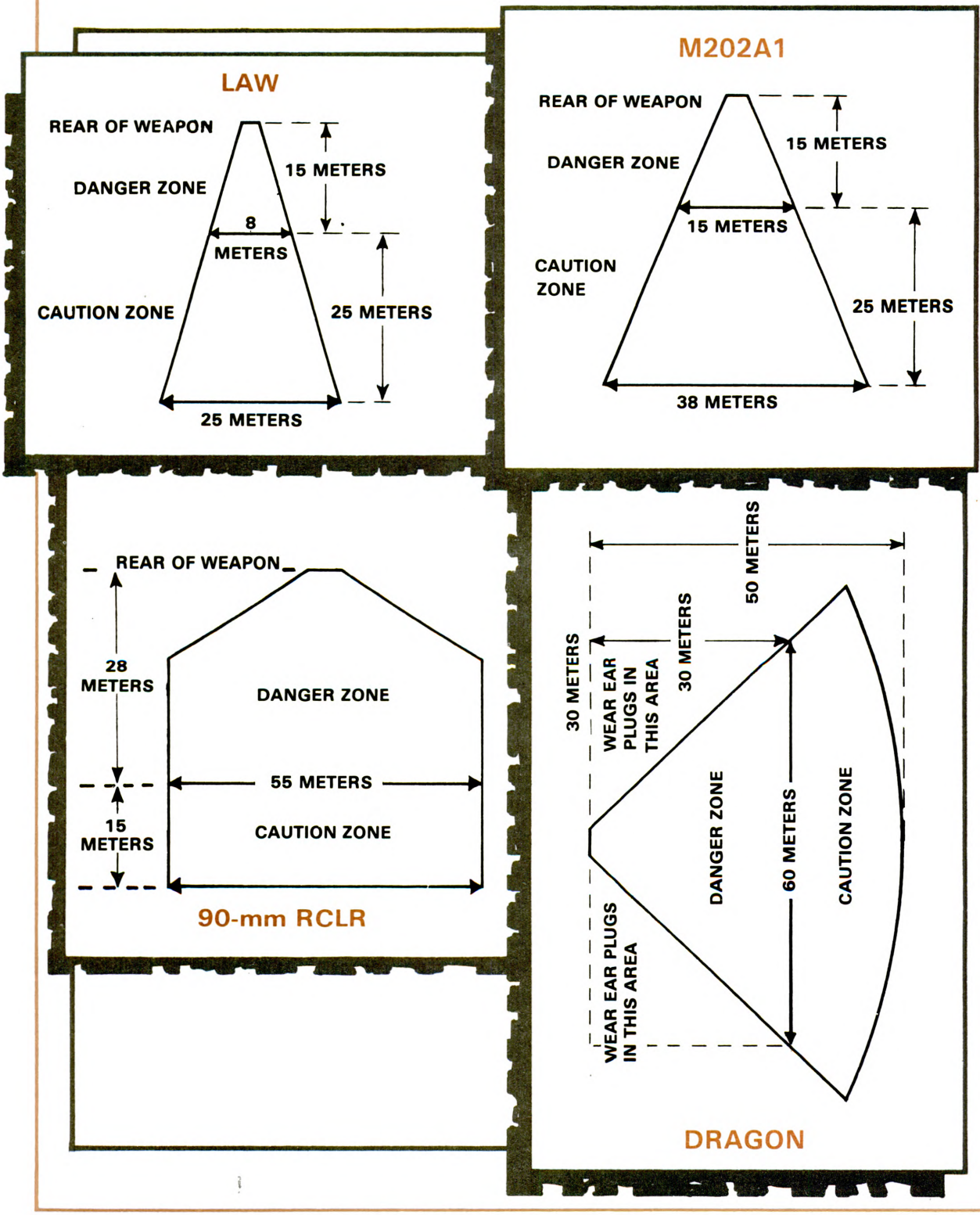
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- There is **at least** 20 square feet of ventilation (room openings). An **open** door 7 feet x 3 feet provides 21 square feet.
- Glass is removed from all windows and doors.
- Everyone in the room is forward of the rear end of the weapon.
- Everyone in the room wears earplugs and a helmet.



When firing the Dragon, the floor size of the room should be at least 15 feet x 12 feet and the ceiling should be at least 7 feet high. Additionally, you need **at least** 6 inches of clearance between the bottom of the opening and the tube. The launcher should extend 6 inches out of the opening.

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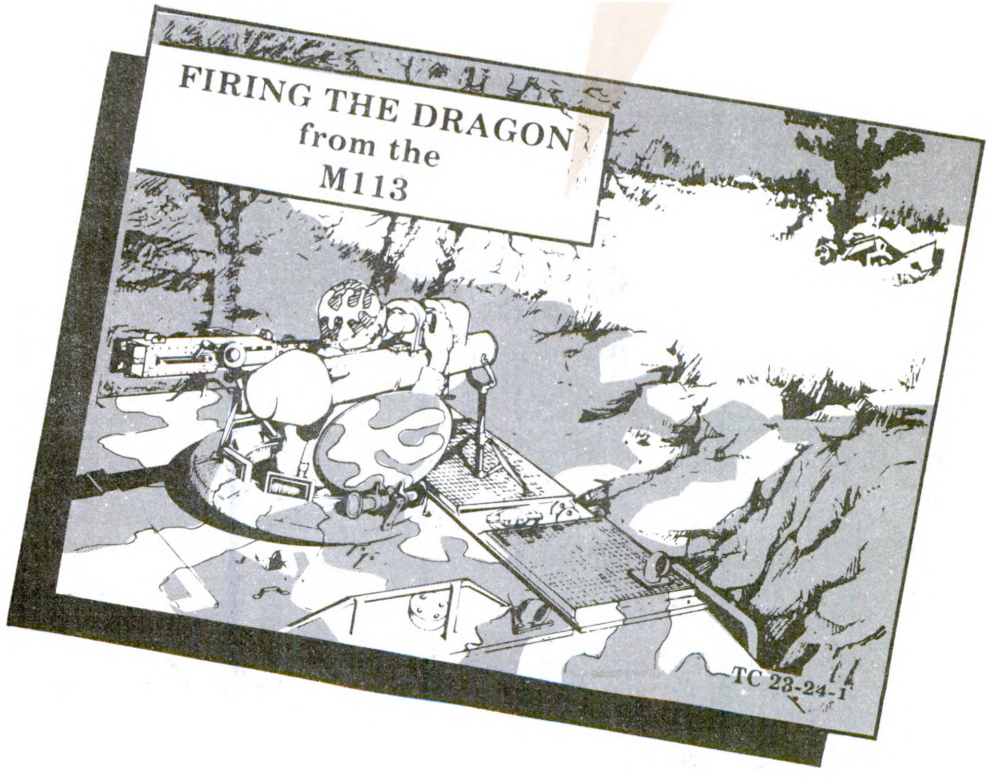


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The LAW can be fired from much smaller rooms than can the Dragon, but make sure you have 20 square feet of ventilation and that there is **at least** 4 feet of clearance from the rear of the LAW to the nearest wall.

FIRING FROM APCs.

Recoilless weapons can be fired from the APC. TC 23-24-1, Firing the Dragon from the M113, illustrates the proper positions for the Dragon. These positions, and the safety precautions that must be taken, are generally applicable to the 30-mm, LAW, and M202.



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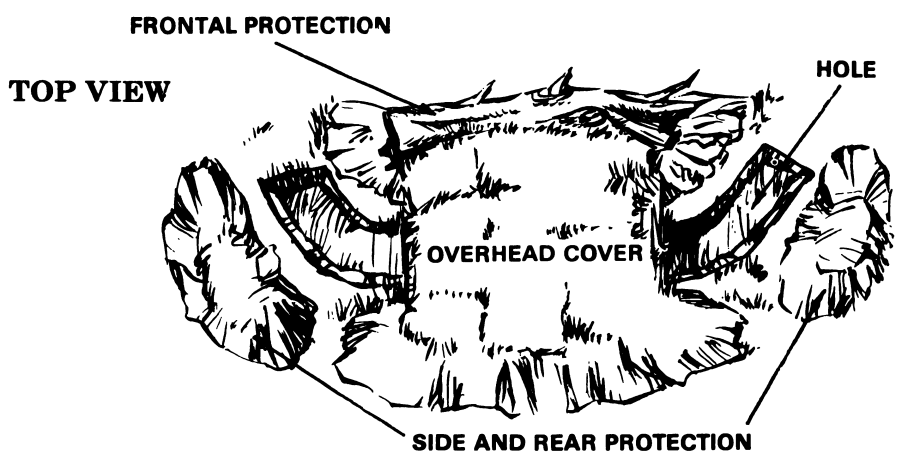
NOTES

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APPENDIX C
PREPARATION OF FIGHTING POSITIONS

PROVIDING PROTECTION FROM ENEMY FIRE

A good fighting position will protect you from direct enemy small arms fire and indirect fire fragmentation. Protection from small arms fire is provided by frontal cover. Natural frontal protection (trees, rocks, logs, rubble, etc.) is best because it is hard for the enemy to identify a fighting position concealed by natural cover. However, it may be necessary to use the dirt from the hole if natural frontal protection isn't big enough or is not available. Frontal protection must be **long** enough to provide adequate fighting room for two soldiers, **thick** enough (at least 18 inches/46 cm of dirt) to stop enemy small arms fire, **high** enough to cover the heads of the soldiers firing from it, and **far** enough in front of the hole to provide room for elbow rests and sector stakes so that the soldiers can fire to the oblique.



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Protection from larger enemy direct fire weapons (e.g., tank gun fire) is gained by locating the position where it can't be hit and be concealing it so the enemy can't pinpoint its location. Natural frontal cover conceals better than that which you build yourself.

Protection from indirect fire fragmentation is gained by **getting men below ground level.** When possible, you should always construct overhead cover so that you will have even more protection against airburst artillery.

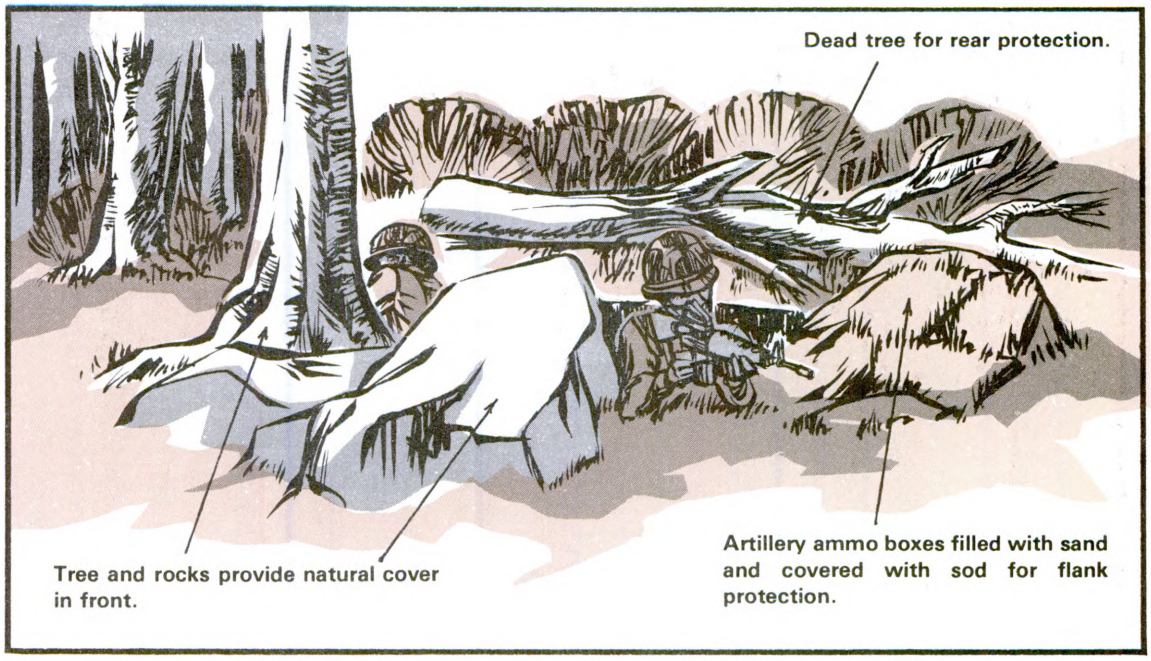
TESTS SHOW THAT--

- **Almost twice as many men are killed or wounded by small arms fire when their positions do not have frontal cover.**
- **You are at least 10 times more protected from indirect fire if you are in a hole with overhead cover.**

To insure complete protection for fighting positions, flank and rear cover is necessary. It protects against the effects of indirect fire that bursts to the flanks/rear of the position and against the effects of friendly supporting weapons located in the rear, e.g., discarding sabot rounds fired from tanks, or small arms.

Ideally, this protection is provided by natural cover. In its absence, an artificial parapet must be constructed as time and circumstances permit.

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WHEN CONSTRUCTED, ALL ARTIFICIAL COVER MUST BLEND IN WITH THE SURROUNDING TERRAIN SO IT CANNOT BE DETECTED BY THE ENEMY.

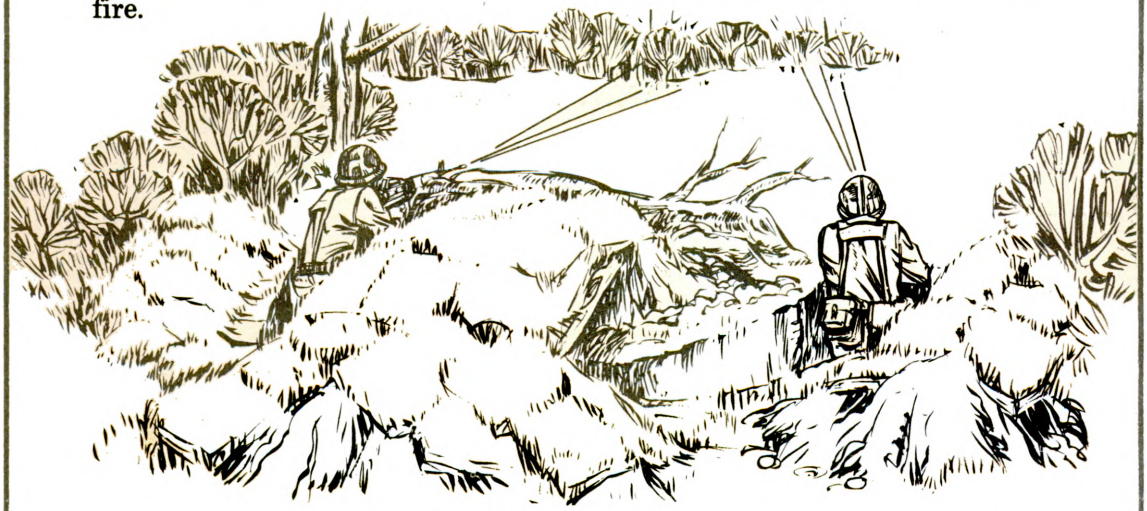
Another aspect of gaining protection is to make the position as small as possible. The smaller the position, the less likely are enemy rounds, grenades, or fragments to get into it.

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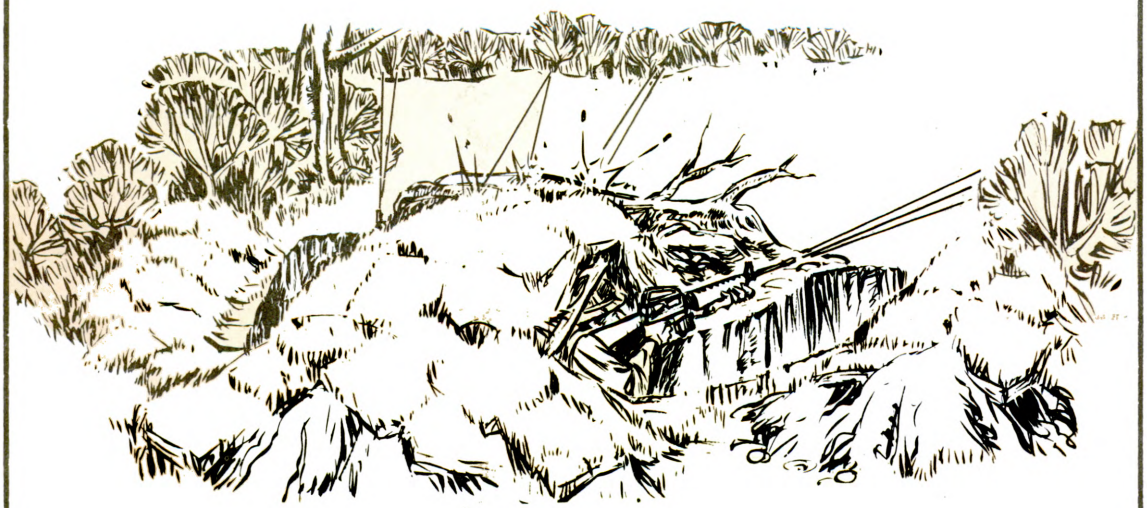
ALLOWING ENGAGEMENT OF THE ENEMY

A good fighting position should --

Allow you to see and fire to the front when not receiving effective direct fire.



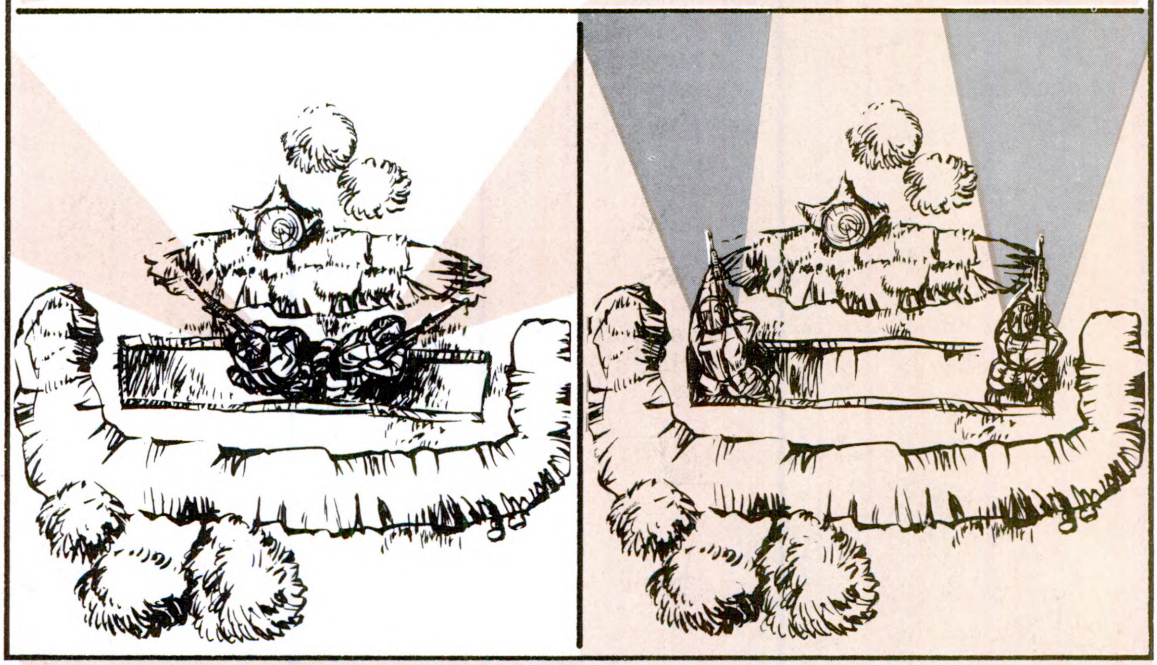
Provide frontal protection so that when receiving effective direct fire you can move behind the protection and fire to the oblique.



Provide overhead, side, and rear protection so that you can continue to fight when indirect fire lands around you.

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Have good fields of fire which permit you to see and shoot at the enemy. You are usually better off to locate each position where it is not necessary to do much clearing of fields of fire. The more you have to clear, the greater the chance that the enemy will notice it and identify your positions. If you must clear fields of fire, don't clear any more than necessary to insure that each man can cover his sector of fire. When your mission is to repel an enemy assault, **the primary sector of fire for each position is to the oblique,** so clear those sectors first!



PROVIDING CONCEALMENT

No matter how much protection you think you have, the enemy can beat you if your positions are easy to see. Therefore, you must conceal your position! Conceal them so well that the enemy will have difficulty seeing them even after he gets within hand grenade range.

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POSITIONS SHOULD BE INVISIBLE FROM THE FRONT



While digging the position, **take care not to disturb the natural cover and concealment.** The dirt you dig out can be used to prepare parapets or disposed of behind the positions. Whatever you do with it, you must camouflage it. Try to use camouflage material that doesn't have to be replaced such as rocks, logs, live bushes, and grass, but don't use so much that your position looks different than the terrain around you.

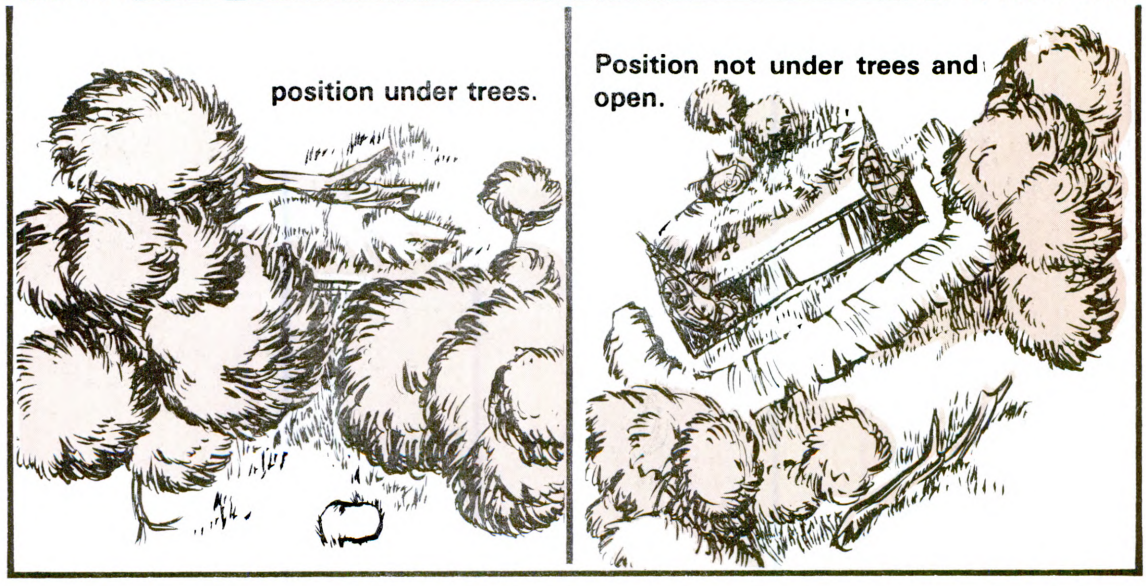
CONCEALMENT FROM AIRCRAFT

Not only must you make your position invisible to enemy infantry and armor, it also must be invisible to enemy aircraft. If your position is under a bush, a tree, or in a building you are less likely to be spotted from above.

By putting leaves, straw, or grass on the floor of your hole you will reduce the contrast that the fresh earth has with the ground around the position.

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THIS . . . . . NOT THIS



Natural concealment is better than manmade because--

- **It is readily available.**
- **It is more difficult for the enemy to pinpoint.**
- **It need not be replaced.**

Concealment not only applies to the position, it also applies to the men and equipment in the position. The frontal protection of a position occupied by riflemen should be long enough to conceal the muzzle blast of the rifle when firing to the oblique. Make sure your men are aware that the more they move about in the position, the more likely they are to be seen. Camouflage on faces, arms, hands, clothes, and equipment will help blend the soldiers into the position and reduce the chance of detection.

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HASTY FIGHTING POSITIONS

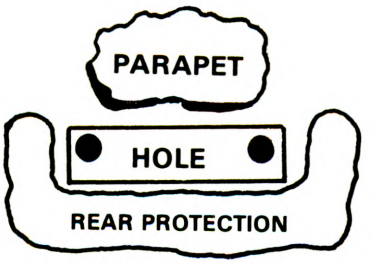
When you first move into a battle position you may have very little or no time to prepare the positions from which you must fight. If that is the situation, have your men occupy hasty fighting positions. A hasty fighting position is a position behind some natural object on the terrain that affords you frontal protection from direct fire but also allows you to fire forward. To provide protection from indirect fire, hasty fighting positions should put soldiers in a small depression or hole to get them as far below ground level as possible.



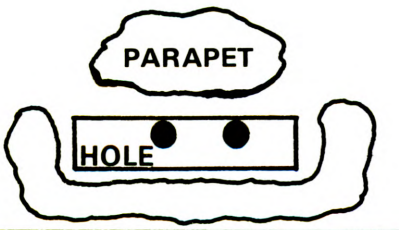
The term hasty position does not mean that you can't dig. Even if you only have a few minutes you can scrape out or dig a prone shelter that will give you increased protection.

HOW TO PREPARE FIGHTING POSITIONS

The basic fighting position is a two-man hole with frontal protection and a parapet around the sides and rear. The characteristics of the frontal protection and the parapet have already been described. The hole must be long enough to allow each soldier to fire around the frontal protection when not receiving effective small arms fire, wide enough for two soldiers wearing load bearing equipment, and at least armpit-deep. It should be as small as possible to afford maximum protection.



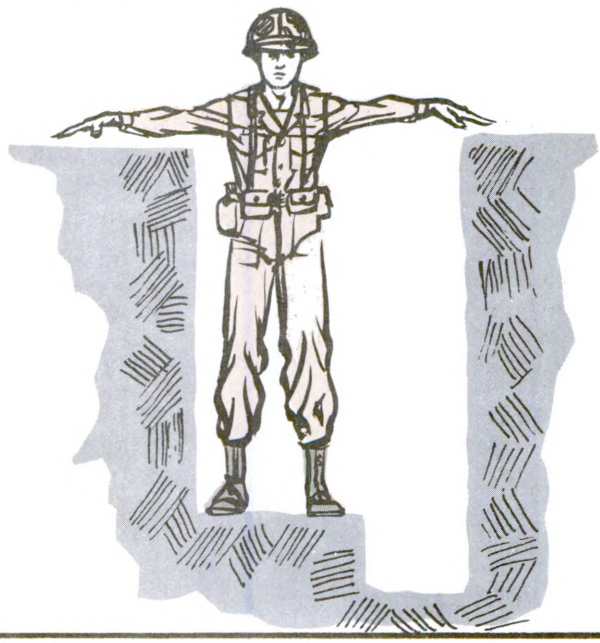
FIRE TO THE FRONT



FIRE TO THE OBLIQUE

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DIG ARMPIT-DEEP



Armpit-deep lowers the profile of the position, and still allows you to fire your weapon. You can dig deeper, but you will have to construct a firing step.

Measure this way . . . don't guess.

PROVIDE SUPPORT FOR THE FIRER

The distance between the hole and the frontal protection should be wide enough to allow the soldier to fire from a supported position (one with elbows on the ground).

THIS . . .



supported fire to the front.

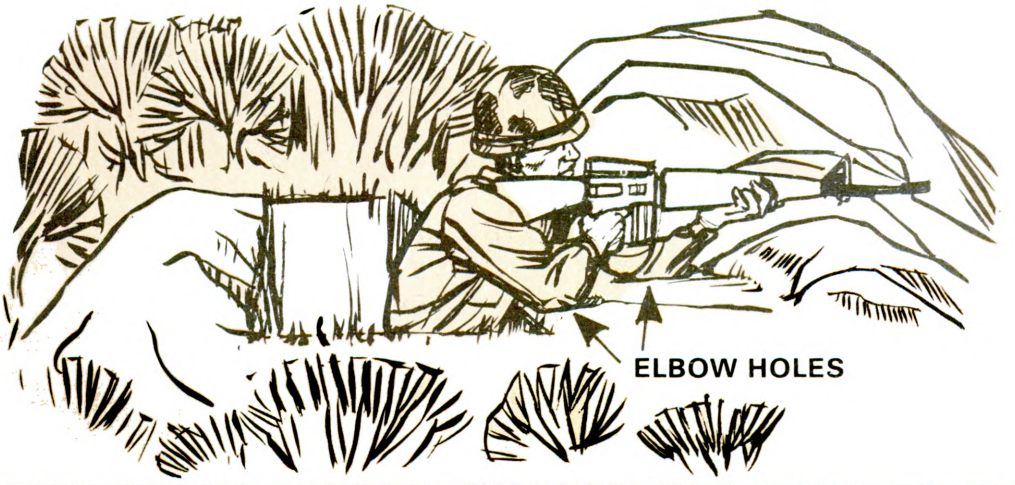
. . . NOT THIS



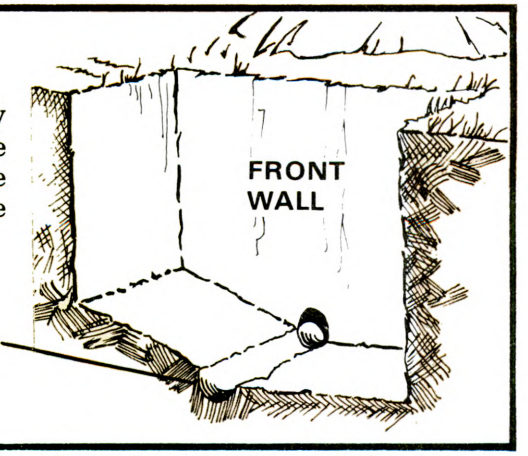
Unsupported fire to the front.

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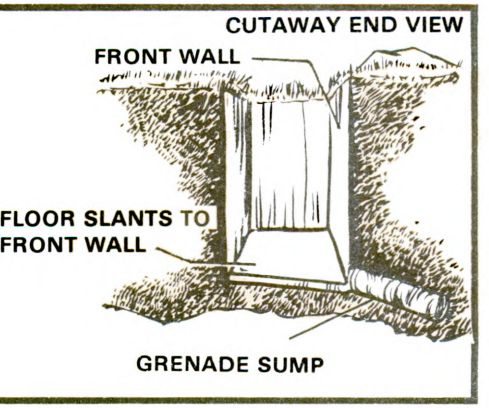
Dig ELBOW HOLES to stabilize your arms and lower your silhouette.



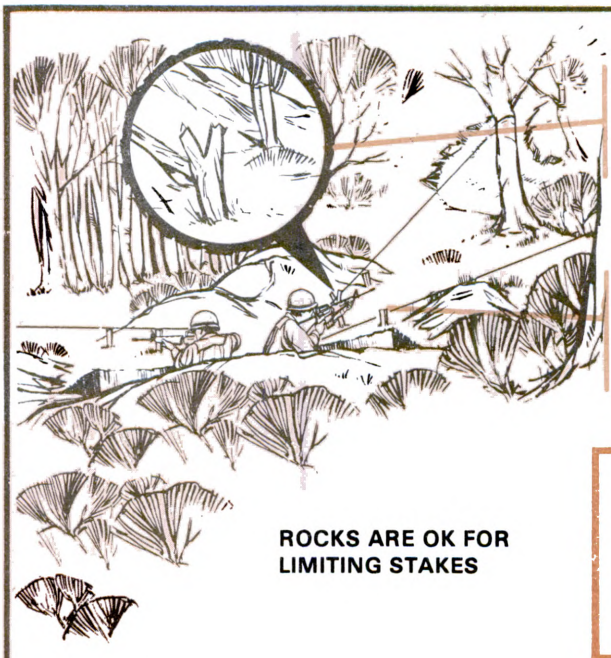
WATER DRAINAGE is provided by sloping the floor of you hole toward the center. A shallow trench scooped out of the floor will further direct water toward the front wall.



Grenade Sump. At the bottom of the wall toward which water will drain, use your intrenching tool to dig a hole downward at an angle of about 45 degrees, as wide as the shovel blade and as deep as you can dig. This sump is for hand grenades thrown into your position. The slant of the floor should channel such grenades into the sump and its mouth should be smooth and wide enough to be an easy target for kicking grenades there, too.



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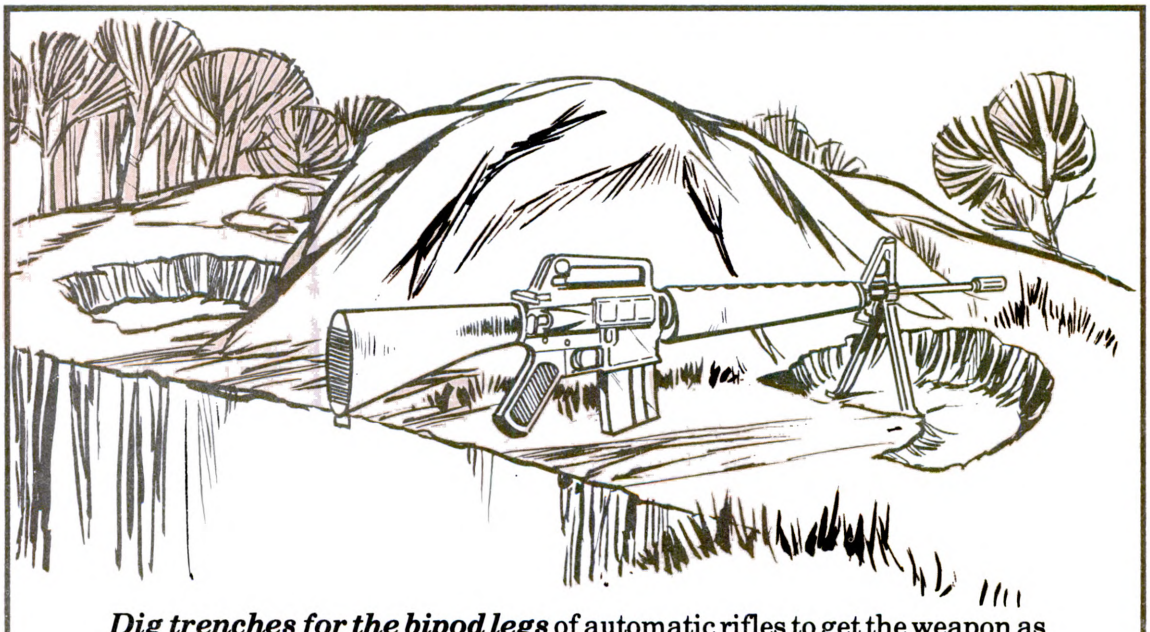
ROCKS ARE OK FOR LIMITING STAKES

Place *AIMING STAKES* toward especially dangerous approaches so you can lay your weapon on these approaches even at night.

Place *LIMITING STAKES* right and left, to define your sector of fire; they will also prevent accidental firing into adjacent positions.

NOTE:

Care must be taken not to destroy the concealment of the position with limiting stakes.



Dig trenches for the bipod legs of automatic rifles to get the weapon as close to ground level as possible.

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VARIATIONS OF THE BASIC POSITION

One-man fighting positions.

A one-man fighting position can be constructed. This position provides greater flexibility in the use of natural protection because the hole only has to be long enough for one man and his equipment. However, it does not offer the security of a two-man position.

The soldier still has the ability to engage targets to his direct front or to the oblique from behind frontal protection.



Modified two-man position.

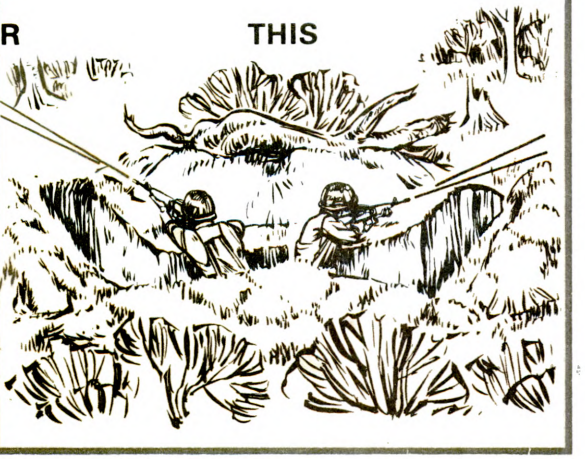
You will not always be able to fight effectively from the rectangular hole. In rugged terrain where grazing fire and mutual support are limited to the adjacent position, or in order to cover dead space immediately in front of the position, the hole may have to be modified. You can do that by extending one or both ends of the hole along the sides of the frontal protection.

LIKE THIS



OR

THIS



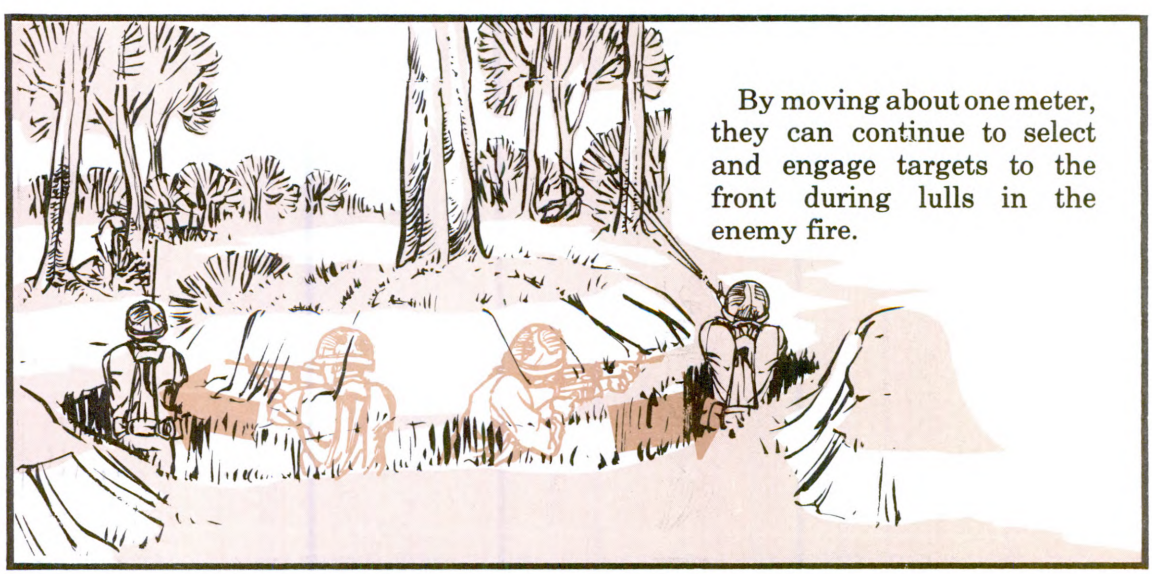
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Modifying the hole this way will allow each soldier maximum observation and fields of fire to the front. This is also an advantage during rest or sleep periods since one soldier can observe the entire sector of fire while the other rests.



If they receive effective fire from the front, the men can move back to gain the protection of the frontal cover.



By moving about one meter, they can continue to select and engage targets to the front during lulls in the enemy fire.

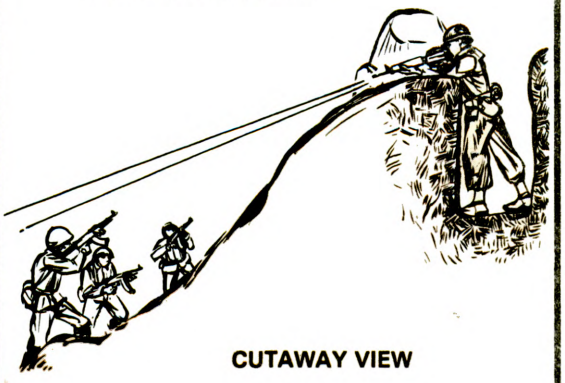
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POSITIONS ON STEEP TERRAIN

When building positions on steep terrain, you cannot simply dig a hole behind frontal protection because you would not be able to fire at the enemy without standing up.

NOT THIS . . .

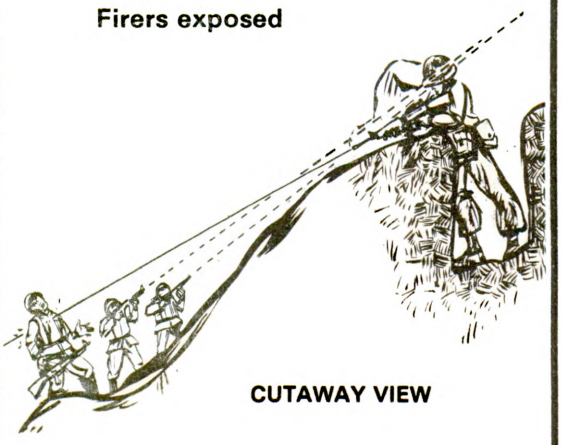
Fires not effective



CUTAWAY VIEW

. . . OR THIS

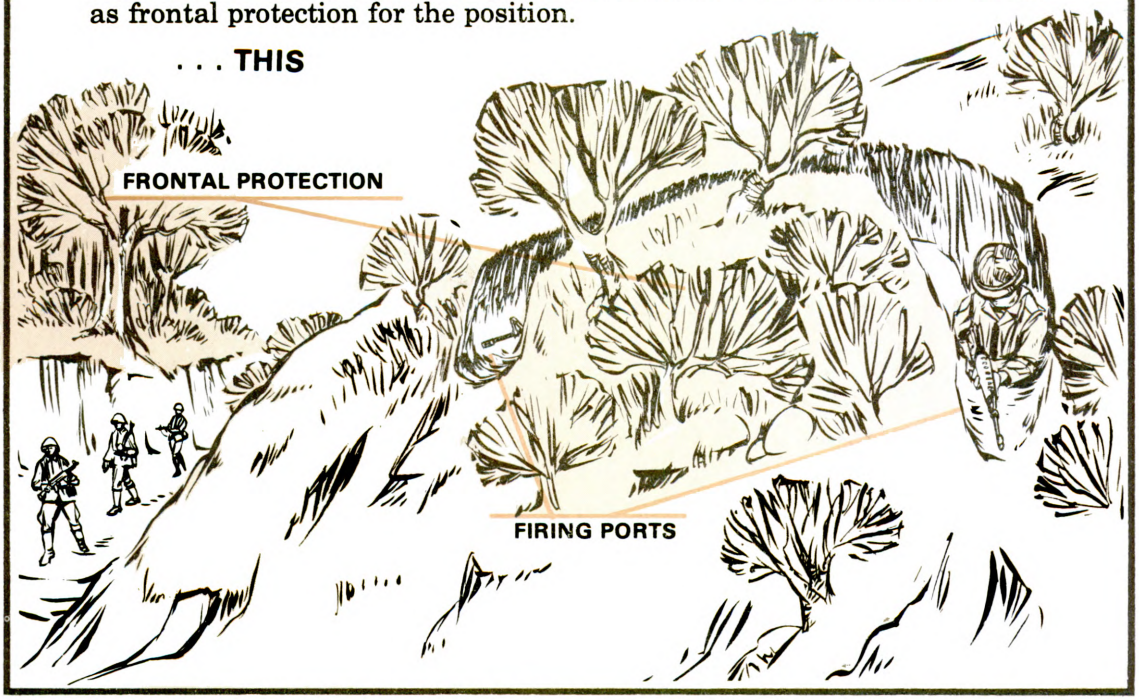
Firers exposed



CUTAWAY VIEW

To overcome this problem, dig your hole and then cut firing ports forward from each end of the hole. The ground between the firing ports then serves as frontal protection for the position.

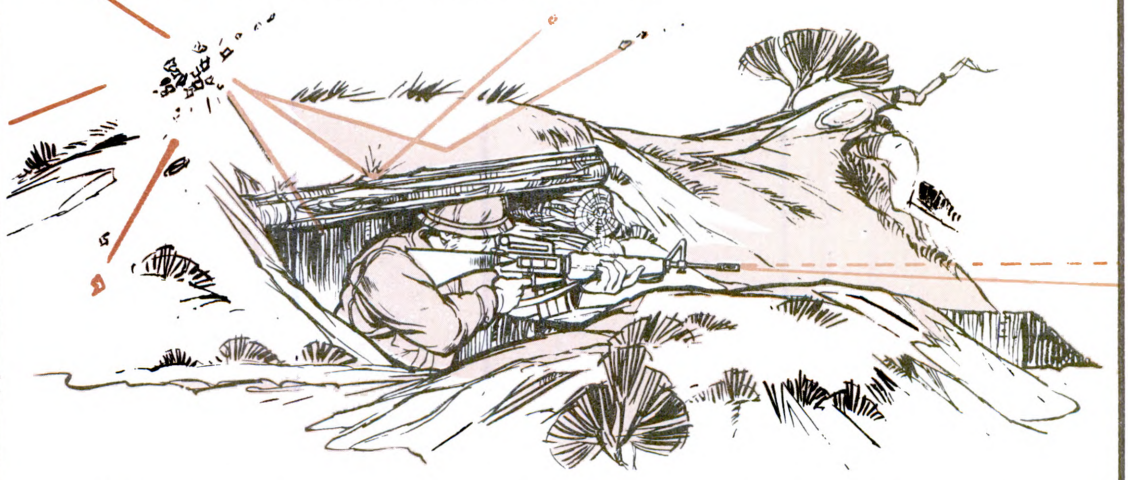
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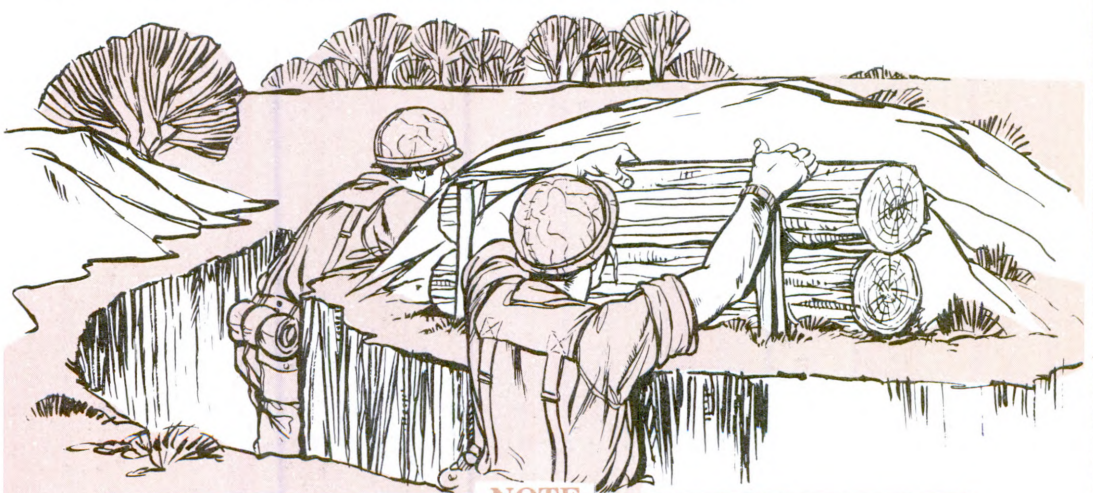
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CONSTRUCTING OVERHEAD COVER

Frontal protection, the hole, and the parapet offer the soldier some degree of protection against indirect fire fragmentation. However, overhead cover should be constructed to provide the best possible protection, especially from airbursts. As stated earlier, a good position will have overhead cover that allows you to fight from underneath it.



Support for this overhead cover is contructed by placing 4- to 6-inch (10 to 15 cm) logs on top of each other along the entire length of the front and rear protection. This provides reinforcement for the base.

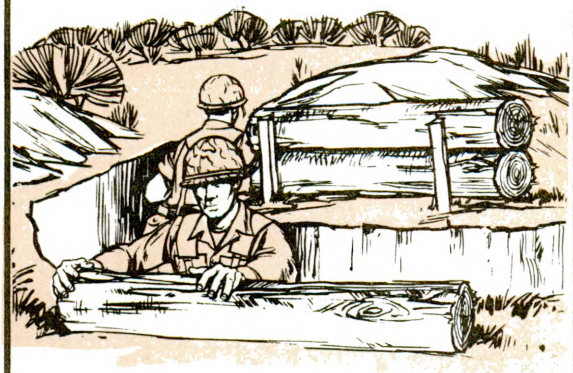


NOTE:

The front supports are high enough to allow the firers to shoot from underneath.

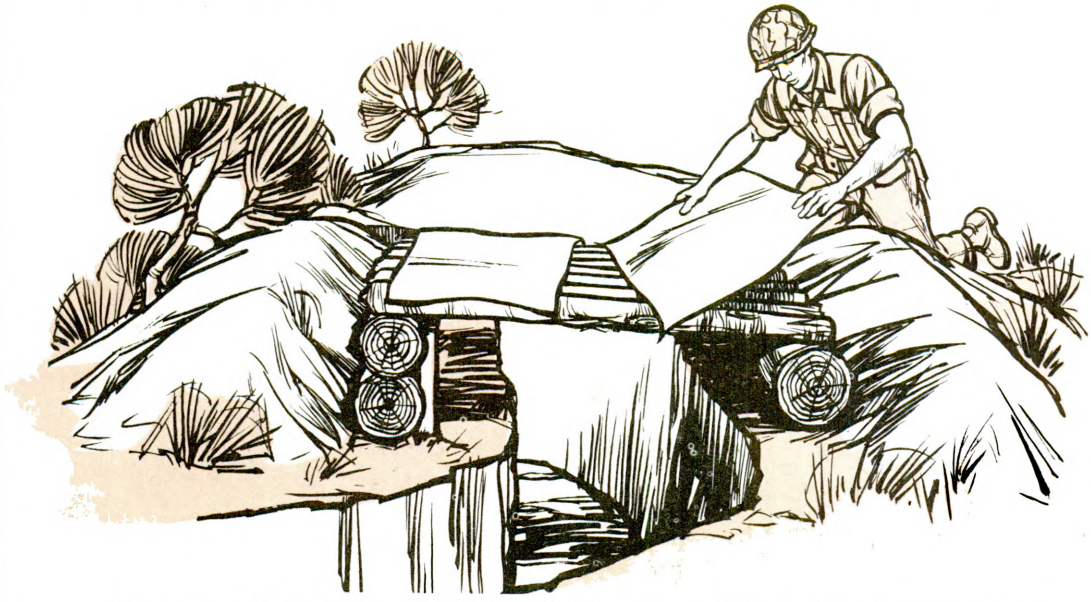
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The base consists of 4- to 6-inch (10 to 15 cm) logs placed side by side across the support.





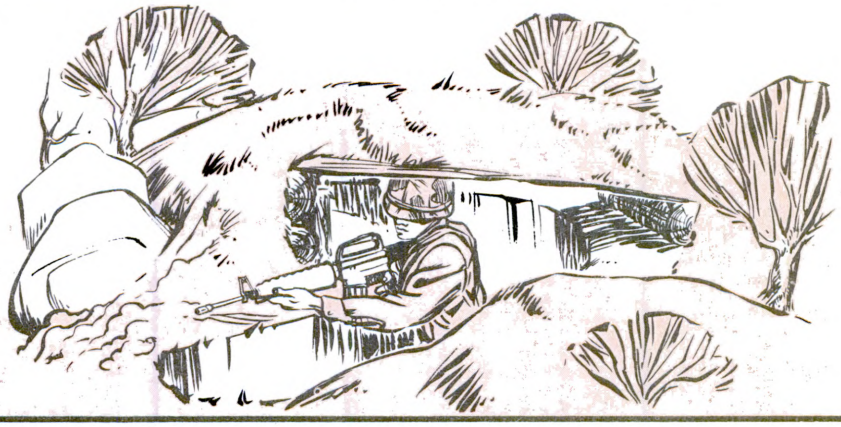
A waterproof or water repellent layer such as waterproof packing material from Dragons, C-rations, or a poncho is then placed over the logs.



6-8 inches (15-20 cm) of dirt is added and molded to blend as much as possible with the slope of the terrain.

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Finally, natural camouflage is applied to conceal the overhead cover. When completed the soldier will have protection against indirect fire fragmentation while still being able to engage the enemy.



When the fighting overhead cover would significantly increase the silhouette of the position making it vulnerable to detection, flank overhead cover should be used.

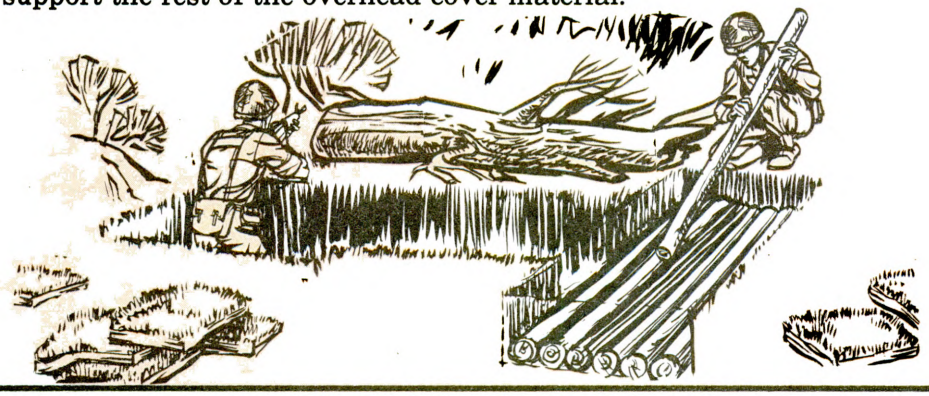
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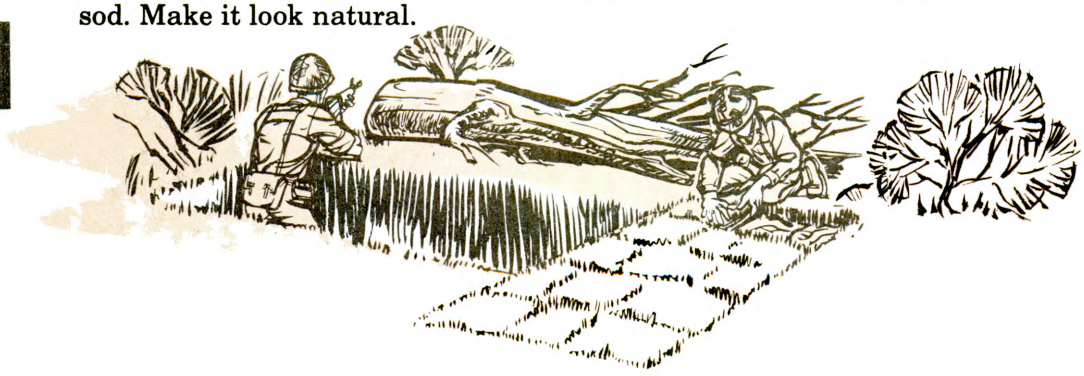
Dig out to a depth of about 12 inches (30 cm), saving the sod for camouflage.

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2 Next put supporting logs, planks, or whatever is available across the area to support the rest of the overhead cover material.



3 Fill up the hole, piling dirt on top of the log cover and camouflaging it with sod. Make it look natural.



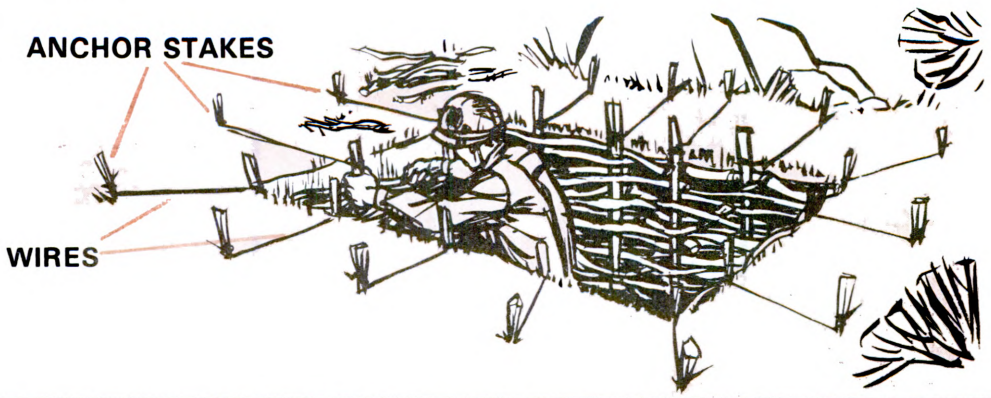
4 Then get in your hole and dig out a cave-like compartment under the cover.



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REVETMENTS

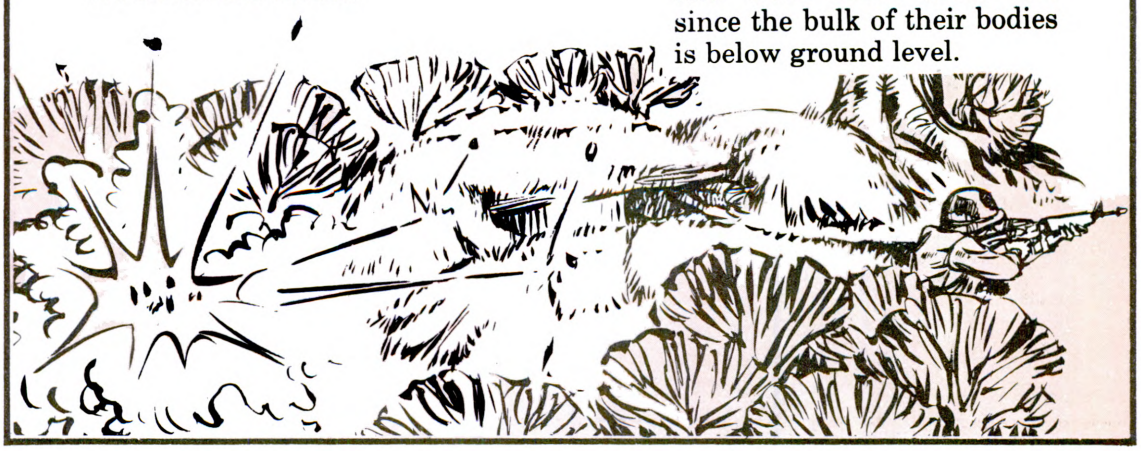
Revetments are supports put along the side of a fighting position to prevent the sides from collapsing. Use of revetments is particularly important when fighting positions are constructed in loose soil or during wet weather. Anything that will hold in the walls (wire, boards, logs, etc.) can be used as revetment material as long as it is staked and anchored. Drive stakes all the way into the ground once you have attached the anchor lines. That way they are concealed and cannot be confused with firing stakes.



ADVANTAGES OF THE BASIC FIGHTING POSITION

When occupied [illegible]

- Soldiers have excellent observation and fields of fire to the front and flanks.
- Soldiers are protected from indirect fire fragmentation and from small arms fire since the bulk of their bodies is below ground level.



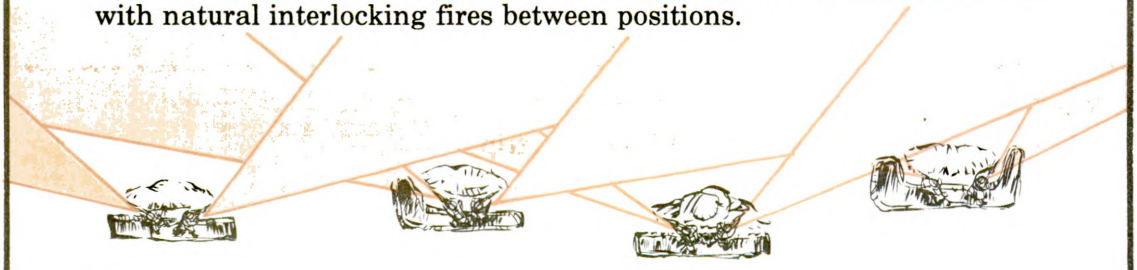
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- Since they can see to the front, soldiers can use claymore mines and hand grenades to protect their position.
- When the ends of the hole are extended forward, LAWs can be fired in pairs from the same position.



When occupied to fire to the oblique--

- Soldiers can observe and fire to the oblique to protect adjacent positions with natural interlocking fires between positions.



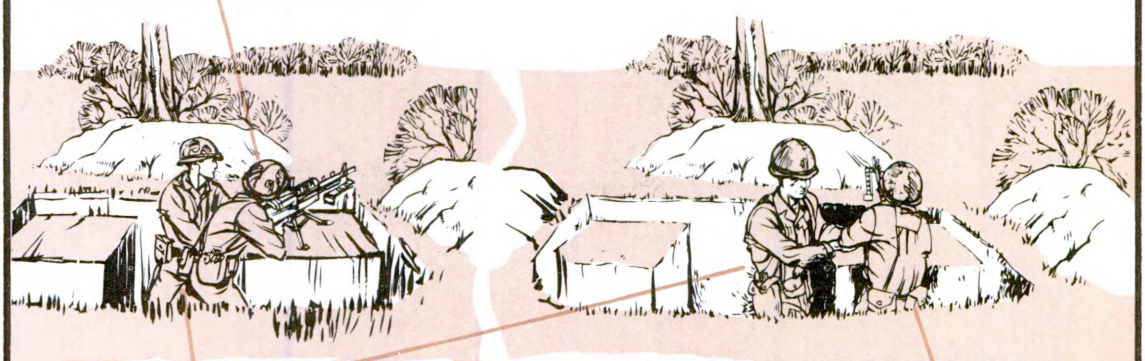
- Soldiers are protected from enemy indirect fire fragmentation by the fighting overhead cover.
- Soldiers are protected from enemy detection of movement or muzzle flash by the frontal protection.
- Soldiers can employ hand grenades and claymore mines to the flanks of their position. Using teamwork, soldiers in adjacent positions can direct the use of these weapons to the front of their buddies' positions.

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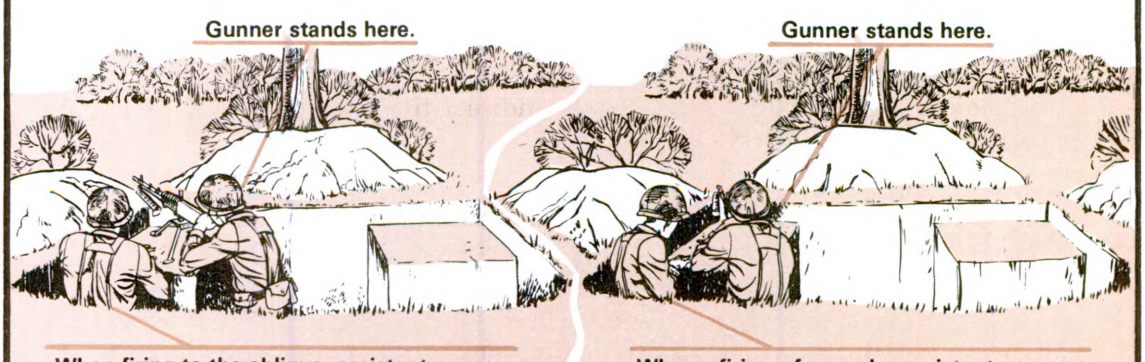
MACHINEGUN POSITIONS

Fighting positions for machineguns may also be constructed so that the gun can fire both to the front and to the oblique. However, it takes two men to keep the gun firing. This means that the hole must be shaped so that both men (gunner and assistant gunner) can get to the gun and the gun can fire to either side of the frontal protection. In order to fire straight ahead, the gunner releases the T & E mechanism from the tripod.

FPL TO THE RIGHT



FIRING TO THE OTHER SIDE -- move tripod to the other side.

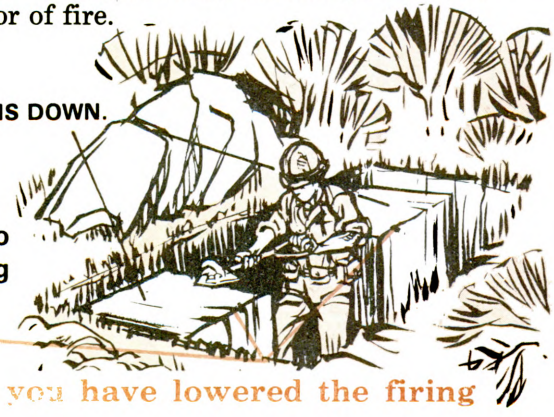


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HOW TO PREPARE A MACHINEGUN POSITION

The platoon leader will tell you exactly where to put the gun, give you a sector of fire, and assign you a final protective line (FPL) or principal direction of fire (PDF). Position the tripod so that the gun can be laid on the FPL or PDF and the crew is behind the frontal protection. When the tripod is in place so that you can fire the FPL, mark where you are going to dig the tripod table, move the gun to the other side of the position, and do the same. You can then decide exactly how you must dig the hole.

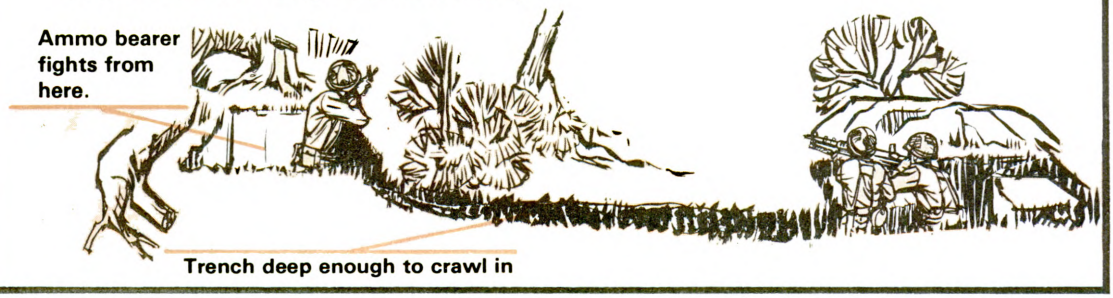
After digging the hole, reduce the height of the gun by digging down the tripod platform as much as you can. Don't dig it so deep that the gun cannot be traversed across your entire sector of fire.



Don't put the tripod legs too close to the edge of your hole or the firing platform may collapse.

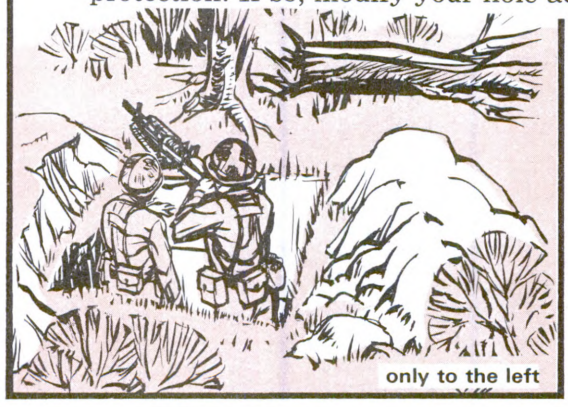
Make your range card after you have lowered the firing platform.

When you have a three-man crew for the machinegun, have the ammunition bearer prepare a one-man fighting position so that he can observe and fire to the front and secondary sectors of fire of the machinegun. This means that the ammunition bearer's position should be on the same side as the FPL of the machinegun so that he can protect the immediate front of the position. Connect his position to the gun with a crawling-depth trench so that he can bring over ammunition or replace one of the men on the gun as necessary.



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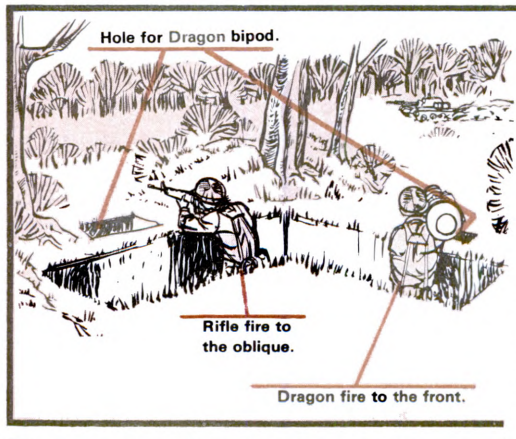
In some positions you may not be able to fire to both sides of the frontal protection. If so, modify your hole accordingly.



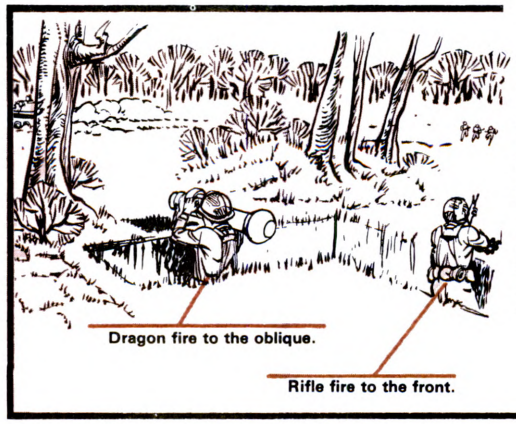


Overhead cover for the machinegun position is constructed in the same manner as for the basic two-man position.

DRAGON POSITIONS



Like any other weapon organic to the platoon, the Dragon can be employed from hasty or improved positions. Keep in mind that the Dragon has a backblast and a muzzle blast that must be considered when you shoot the weapon. When you fire the weapon from an improved position, the muzzle end of the launcher must extend 6 inches (15 cm) beyond the front of the hole and the rear of the launcher must extend out over the rear of the hole.



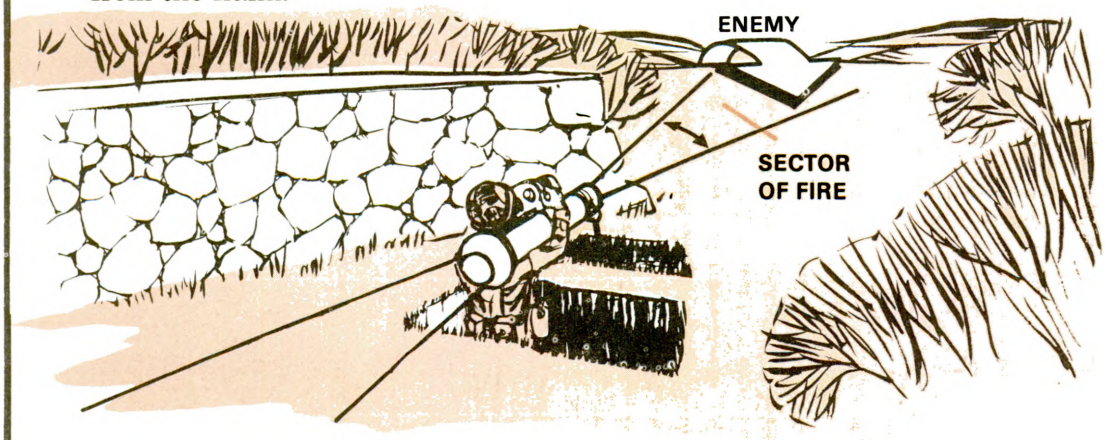
As the missile leaves the launcher, stabilizing fins unfold. You must leave room for these fins, so keep the weapon at least 6 inches (15 cm) above the ground when you fire. Because of this height of the Dragon gunner above ground level, the frontal protection should be high enough to hide his head and, if possible, the backblast of the weapon.

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FIRE ONLY TO THE OBLIQUE

There will be times when the Dragon can be fired only in one direction, and you will adjust your position to have cover and concealment from all other directions.

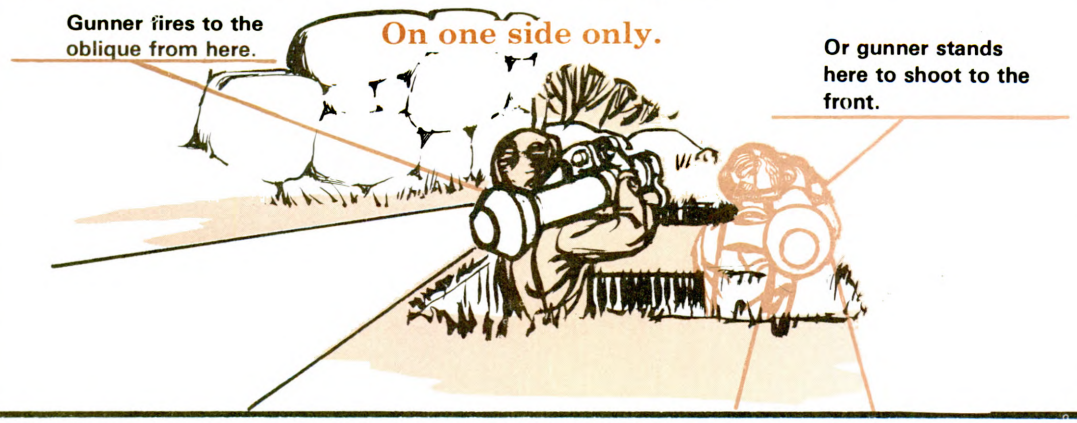
When the Dragon is to fire in only one direction, it should be to the oblique so that the position is protected from frontal fire and the target is engaged from the flank.



Note that the hole is dug at an angle to the frontal protection. This is to reduce the possibility of trapping the backblast in the hole.

Don't forget that both ends of the launcher must extend out over the edges of the hole.

FIRE TO THE FRONT AND TO OBLIQUE



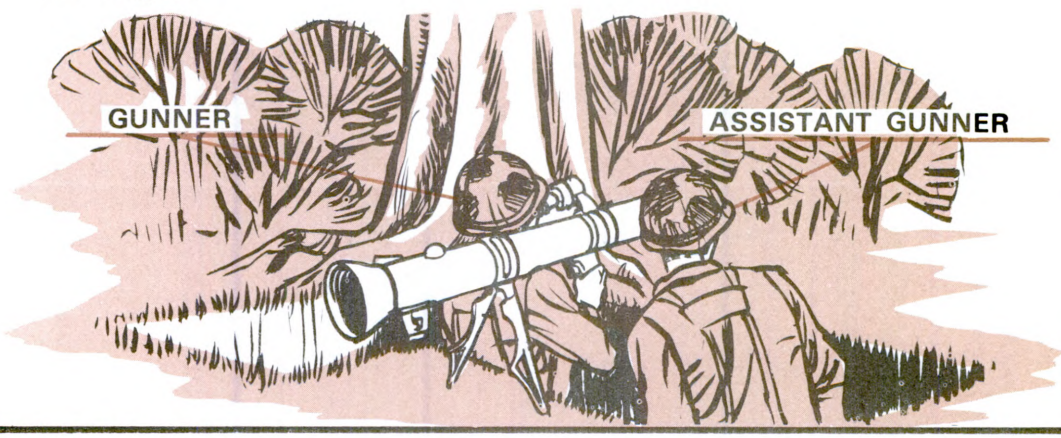
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OVERHEAD COVER

Overhead cover for soldiers is constructed on the flanks of a Dragon position. The size should be large enough for the tracker and missiles as well as the gunner. Overhead cover that would allow you to fire from underneath can be constructed if the backblast area is clear. However, the silhouette of the position may be too high.

90-MM RECOILLESS RIFLE POSITIONS

Positions for the 90-mm recoilless rifle can be constructed like Dragon positions. However, since it takes two men to keep the weapon in operation, the hole will have to be a little longer when firing to the right side of the frontal protection. This lets the assistant gunner work from the right side of the weapon.



FURTHER IMPROVEMENTS IN THE PLATOON POSITION

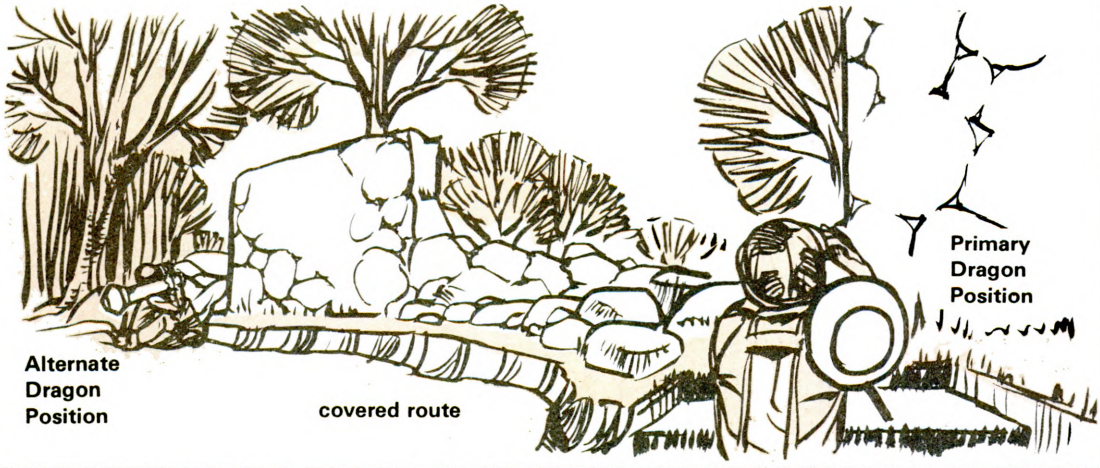
The longer a platoon stays in a position it is to retain the better prepared that position should be to defeat an enemy attack--especially if the mission is to retain a battle position or organize a strong point. The exact priority of tasks will be specified by the platoon leader and will depend on the time and assets available. Typical actions to further improve or harden fighting positions include:

- Constructing alternate weapons positions.
- Constructing trenches, CP bunkers (with engineer support).

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ALTERNATE WEAPONS POSITIONS

Alternate positions are prepared for key weapons. If time permits, construct alternate positions for other weapons. Selection and preparation of alternate positions is of a high priority for the Dragon as this weapon is relatively easy to detect. When an alternate position is selected, preparation and selection of a covered route to allow movement under fire are critical.



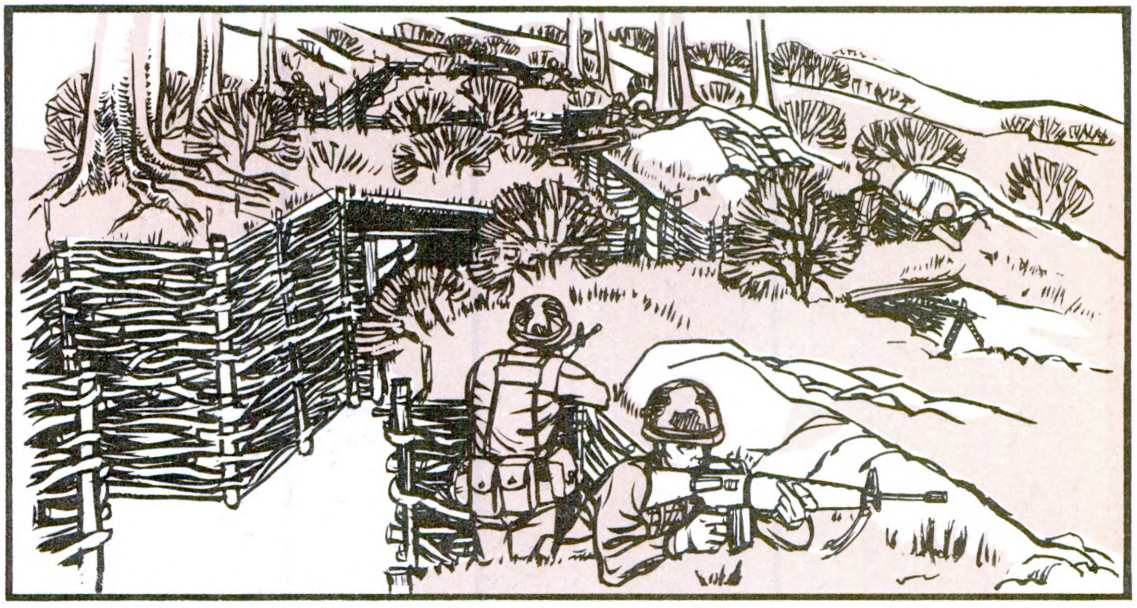
TRENCHES

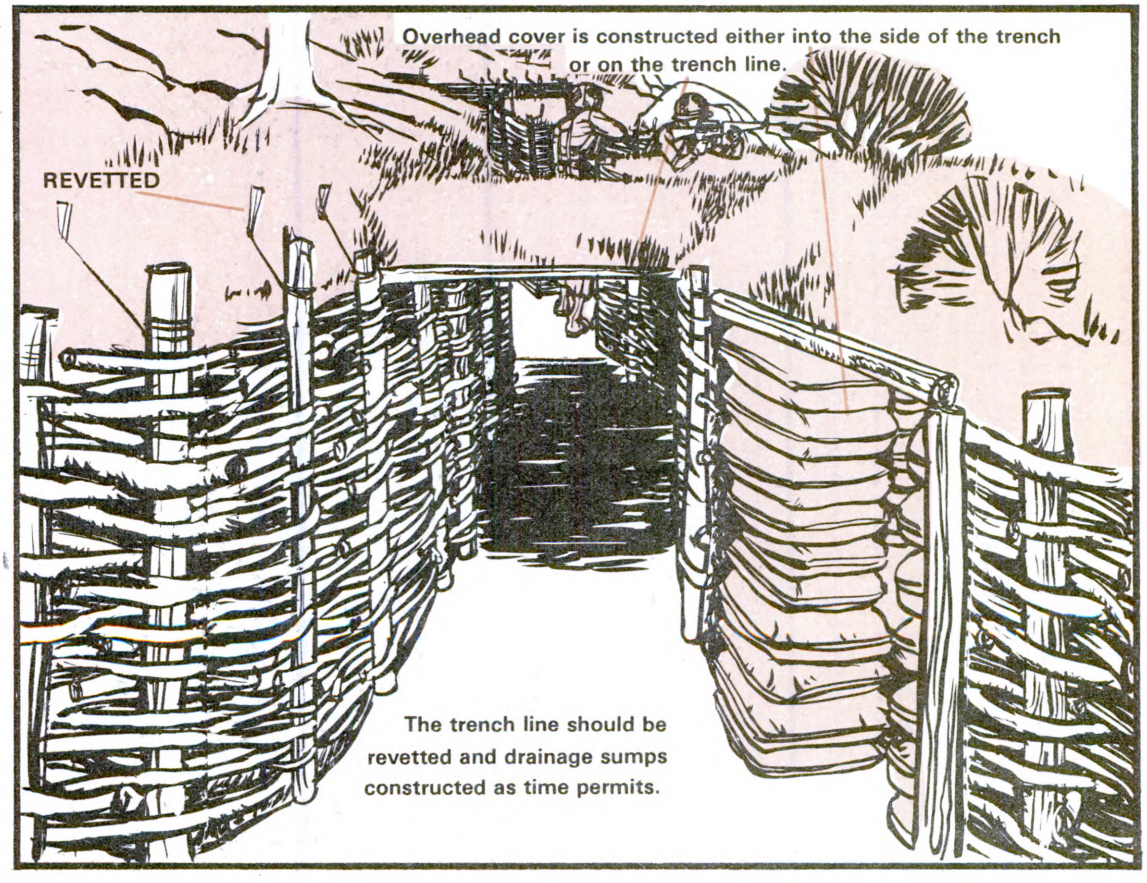
When time and support are available, trenches can be constructed to give the platoon a better ability to reposition men and weapons to meet enemy attacks from different directions.

The depth of the trench is normally a function of the type of support available to construct them. Without engineer support, crawling trenches (about 3 feet deep by 2 feet wide) are normally built.

The trench is marked out before construction is begun to take advantage of all the natural cover and concealment available. The trench should zig-zag to prevent the enemy from being able to fire down a long section of trench. Fighting positions are constructed along the trench.

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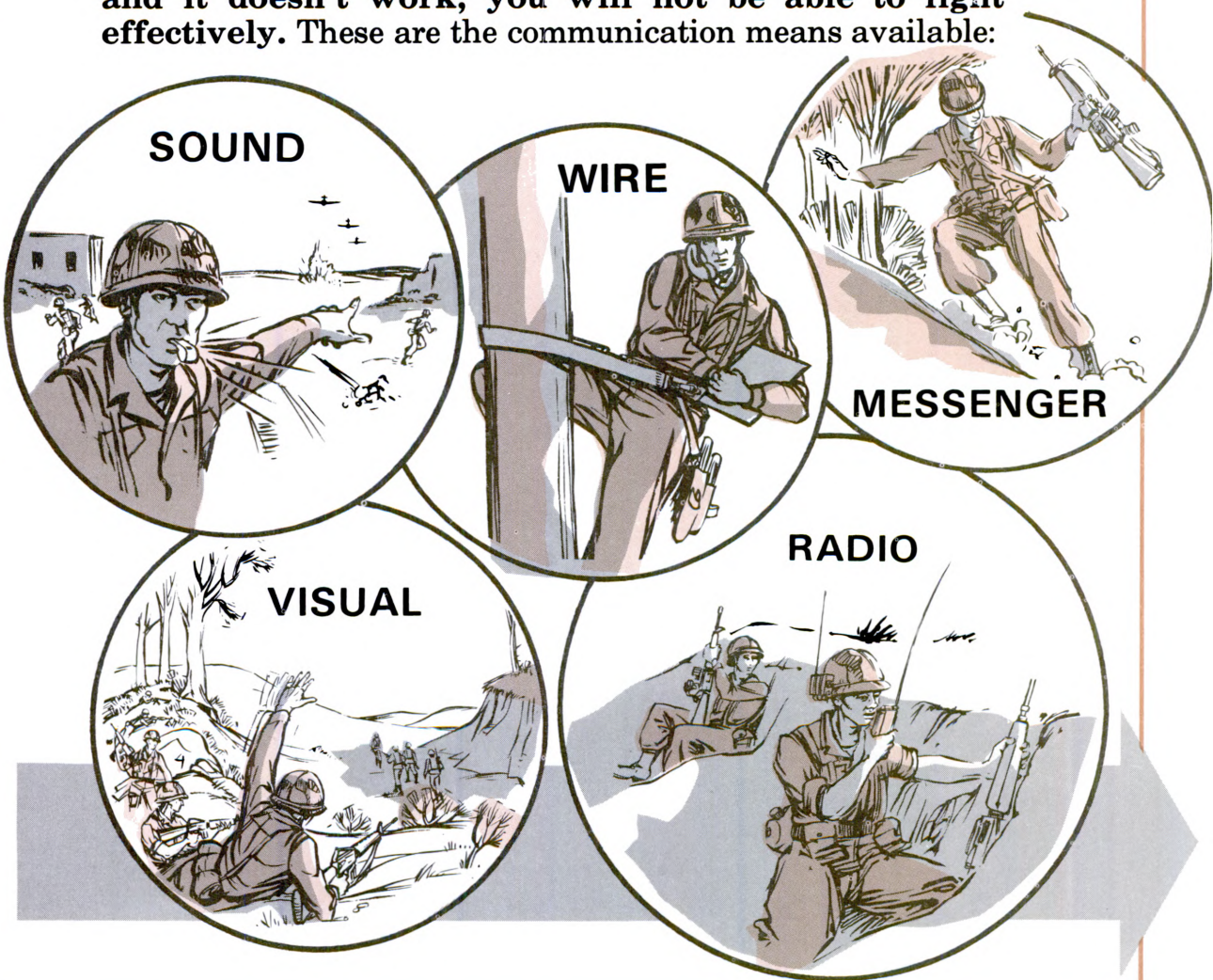
NOTES

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APPENDIX D
COMMUNICATION

In order to control your platoon or squad, to report to your commander, to request support, and to respond to orders, you must be able to communicate. Before every operation think about how you are going to "talk" once it begins.

Different means of communication have different capabilities and limitations. Use them to supplement each other so that you do not depend on one means. **If you plan for only one, and it doesn't work, you will not be able to fight effectively.** These are the communication means available:



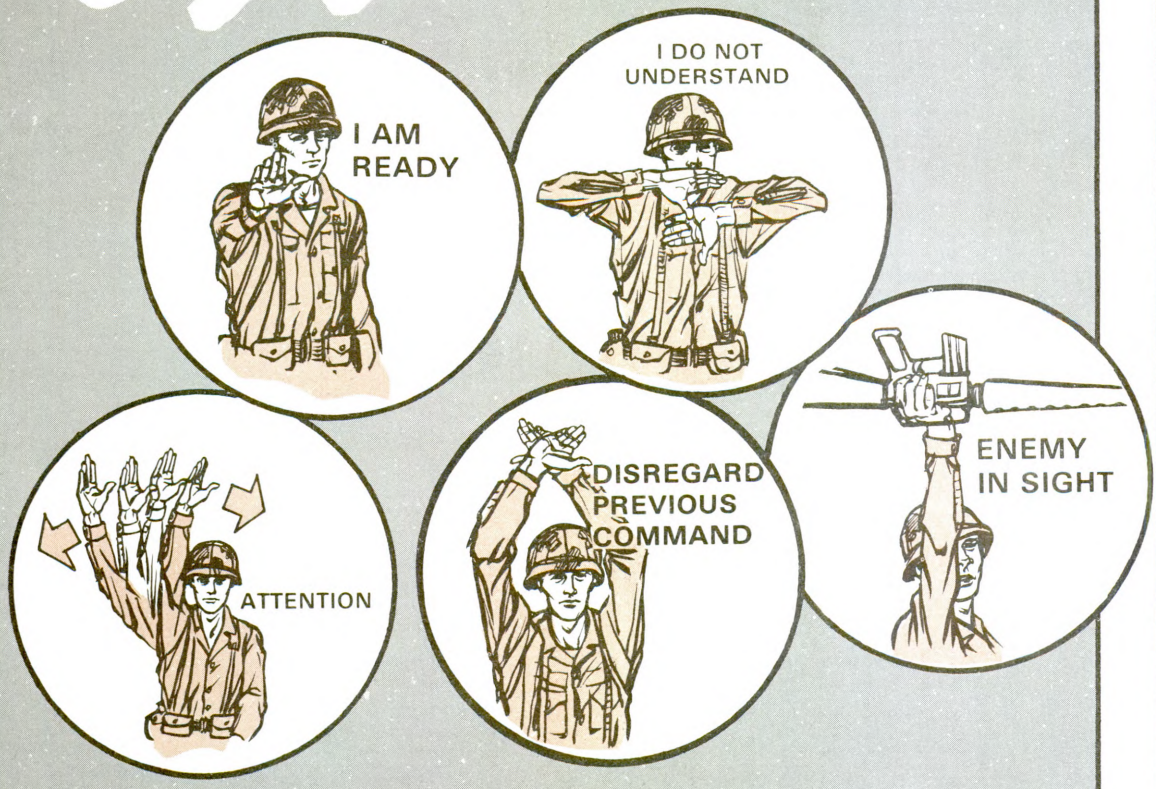
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VISUAL

Visual Communication is the most common means of communication in the squad and platoon when not in contact with the enemy. Arm-and-hand signals, flashlight signals, and pyrotechnics allow quick transmission of messages and instructions. A disadvantage is that they may be intercepted by the enemy. This possibility is reduced if you are properly using the terrain to conceal your unit from the enemy.

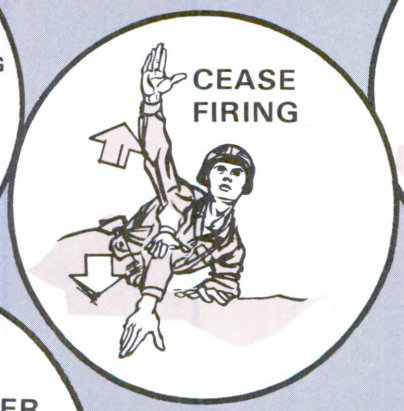
Every man in your unit should be able to send and receive messages using visual signals. To insure their effective use, frequent practice is required.

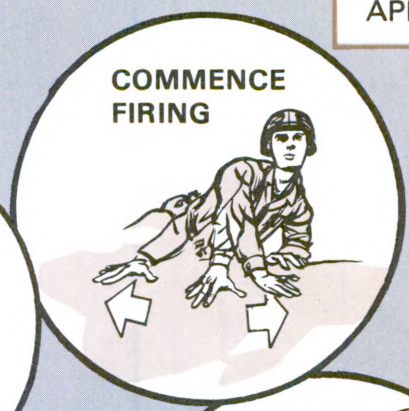
Arm-and-hand signals are standard within squads and platoons when visibility is good. Some of the most frequently used arm-and-hand signals are:



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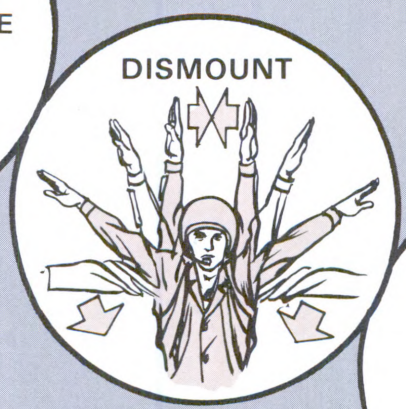




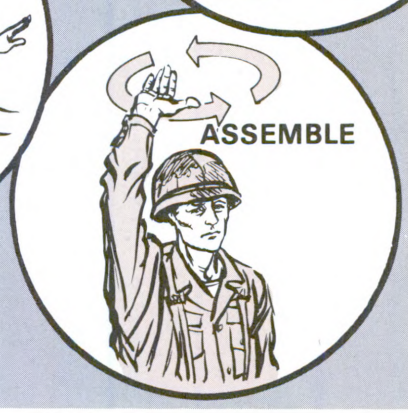




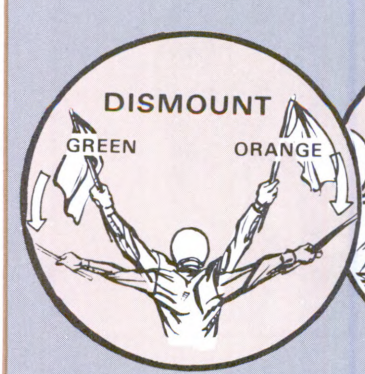


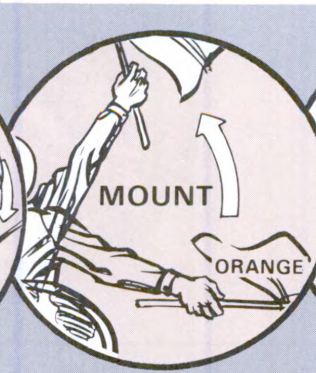


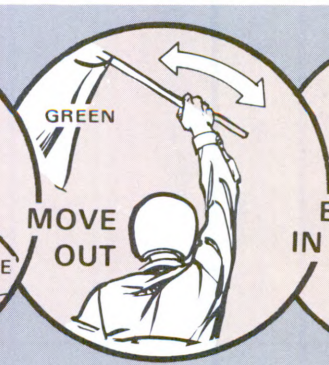


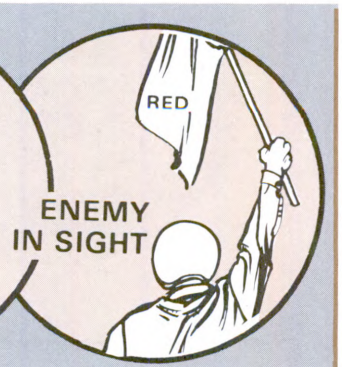


Flag signals are easier to see and understand at greater distances and within poor visibility conditions than are arm-and-hand signals. Each APC and each tank has a set of three flags--red, green, orange.





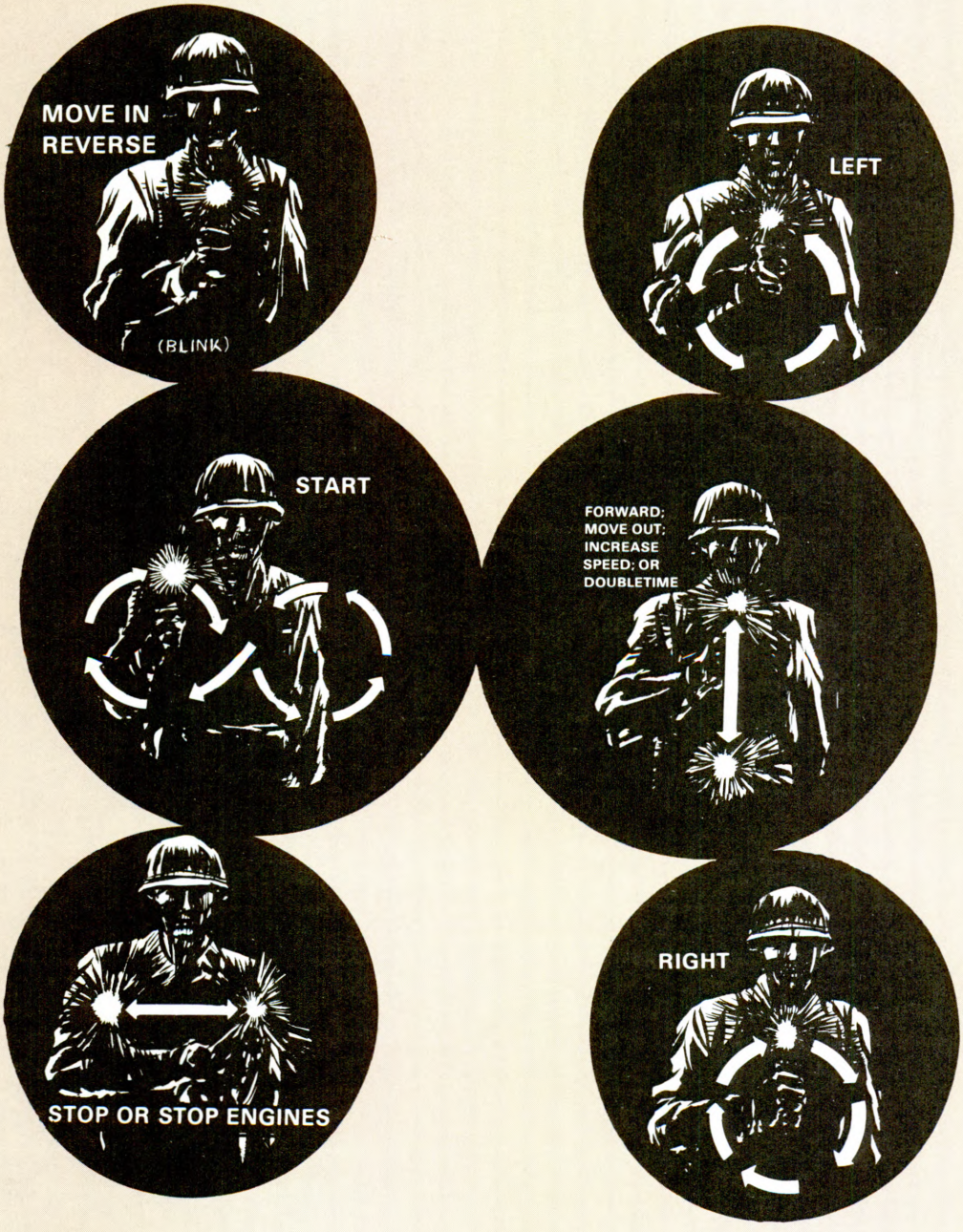




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NIGHT

Flashlight signals can be used to control movement when visibility is limited.



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Pyrotechnic signals can be used to transmit messages during all conditions of visibility but are less effective during daylight. Pyrotechnic signals are prescribed in the CEOI which comes from your battalion. Don't establish your own pyrotechnic signals because they may confuse some other unit--use the ones in the CEOI. Messages transmitted by this method should be confirmed as soon as possible by some other means since the originator can't be certain that the signal was seen and understood.

CAUTION

Pyrotechnic signals are easy for the enemy to intercept and imitate.

Mirrors, headlights, and panels are additional means of communication but are difficult to use while moving.

FM 21-60, Visual Signals, contains a complete list of each type of visual signal.

SOUND

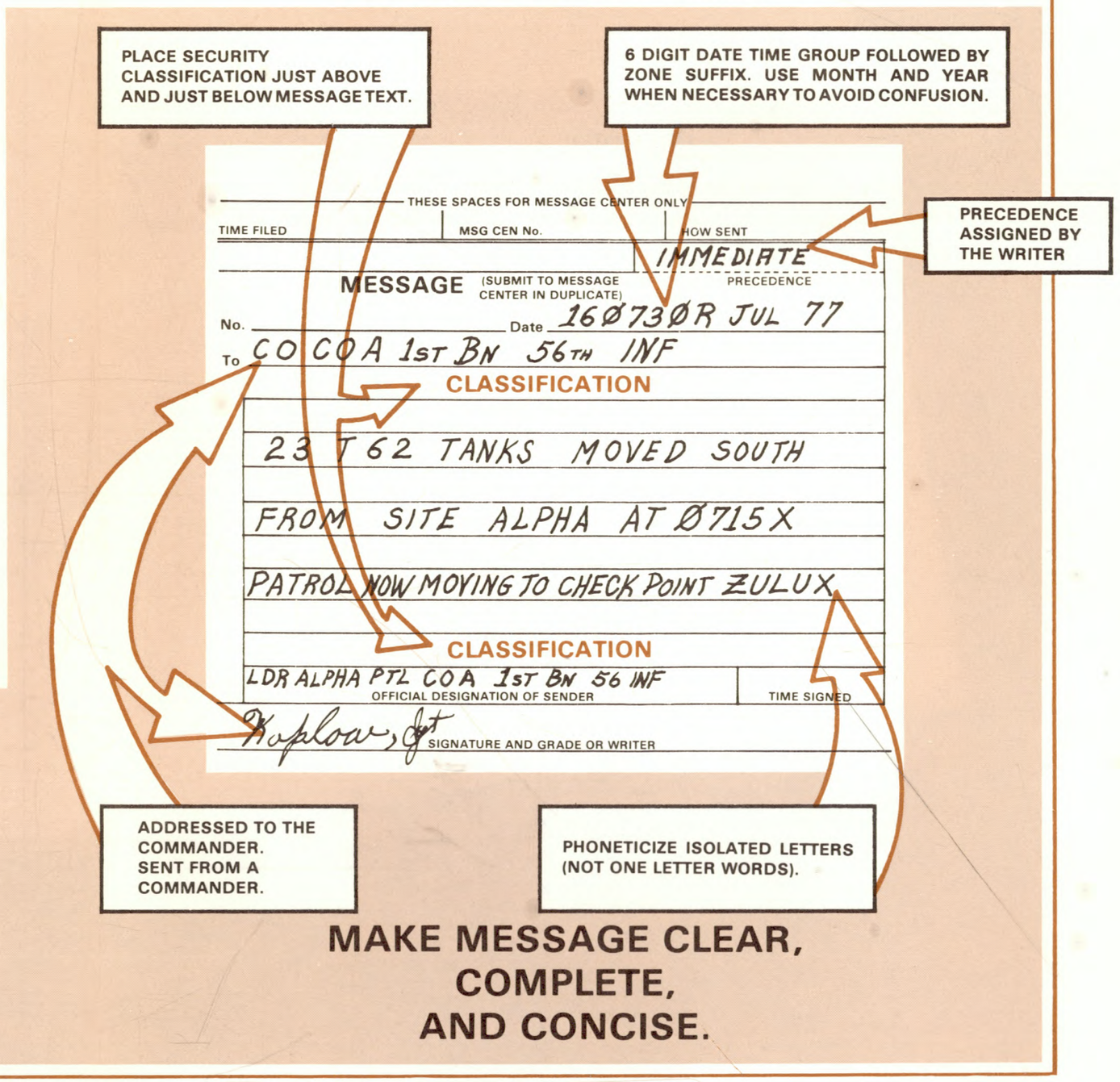
Sound Communication includes such simple devices as whistles, horns, gongs, and explosives. Principal uses of sound signals are to attract attention, transmit prearranged messages, and spread alarms. Sound signals are satisfactory only for short distances; range and reliability are greatly reduced by battle noise. As they are open to enemy interception, they may be restricted for security reasons. Sound signals must be simple to avoid misunderstandings. The means for sound signals are usually prescribed by the unit SOP and CEOI.

MESSENGERS

Messengers are the most secure means of communicating and most of the time are the best way to send long messages that you can't deliver yourself. They are, however, the slowest means of transmitting information and are vulnerable to enemy action.

When you use a messenger, write the message. Its text must be clear, concise, and complete--do not use unnecessary words.

A WELL WRITTEN MESSAGE ON A FIELD MESSAGE FORM



MAKE MESSAGE CLEAR, COMPLETE, AND CONCISE.

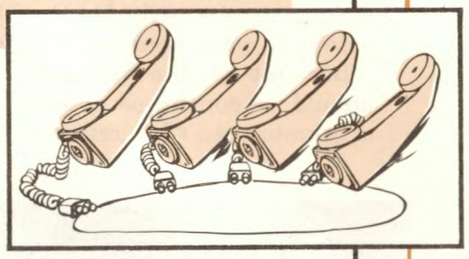
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FOLDOUT

FIELD MESSAGE FORM

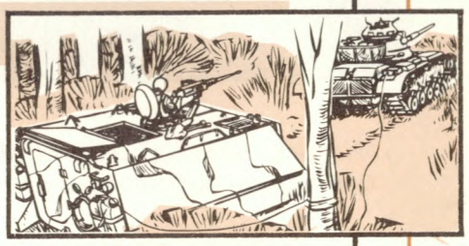
WIRE

"HOT LOOP"



Wire Communication is established in a platoon whenever its platoon leader expects his unit to stay in one place for more than an hour. A platoon "hot loop" is easy to install, easy to take down, and is more secure than radio.

COMMUNICATION WITH TANK



If you are working with tanks and the tanks aren't going to move, you can hook up to the tanks and communicate directly with the tank crew. Wire terminals are on the right rear of each tank.

CARRIER/MANEUVER TEAM

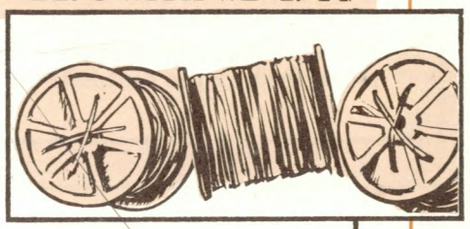


Wire can also be used in some cases when the maneuver teams are moving forward dismounted, overwatched by the carrier teams.

WIRE EQUIPMENT

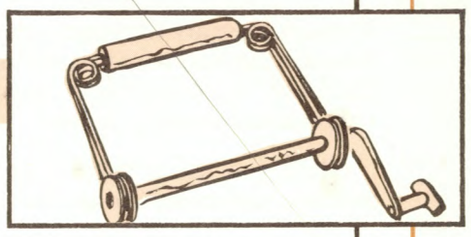
The following are kinds of wire and wire-related equipment that you will be using most of the time.

DR-8 WITH WD-1/TT



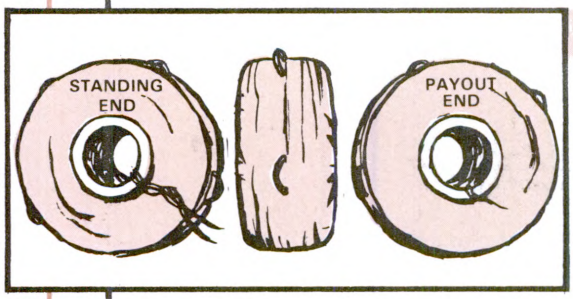
The DR-8 holds 400 meters of field wire (WD-1/TT). Field wire is recoverable and reusable. Always take it up before you move out of a position, if the situation permits it.

RL-39



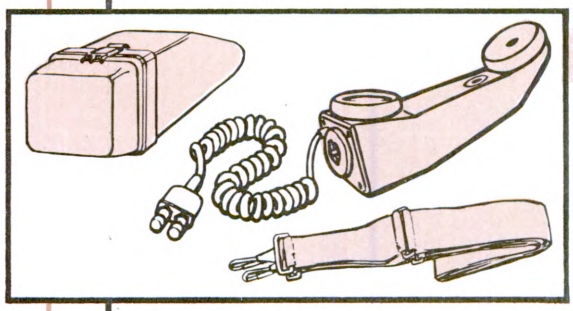
The RL-39 is a hand-held reeling machine that attaches to the DR-8 and lets you quickly install or take up the wire.

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WD-36/TT

Use assault wire in situations where rapid installation and weight are major considerations. It is easily dispersed by hand and is not designed to be recovered. Assault wire comes in ¼-mile and ½-mile dispensers.



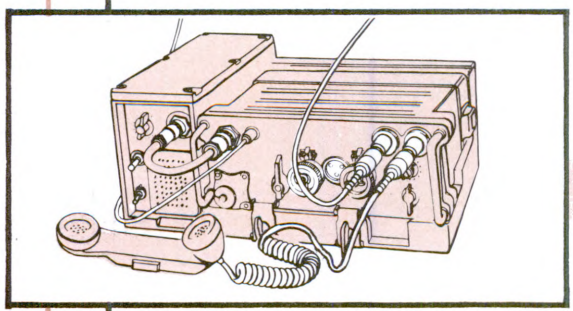
TA-1

The TA-1 Telephone is a sound-powered telephone that has both a visual signal and an audible signal. It uses no batteries, weighs only 3.5 pounds, and has a planning range with field wire of 10-15km.

RADIO

Use **radio communication** within the platoon only when you cannot transmit your message rapidly by other means. The enemy has radio intercept capability. If he hears you, he can figure out what you are doing and where you are located.

Once the platoon makes contact with the enemy, it may become necessary for the platoon leader and squad leaders to talk to each other on the radio. If it does, make your transmissions short and to the point--don't tie up the net.



Radio equipment in a mechanized infantry platoon include the GRC-160, mounted in each APC, and the squad radio (transmitter AN/PRT-4 and receiver AN/PRR-9). The platoon headquarters has two squad radios and each squad has one.

AN/GRC-160

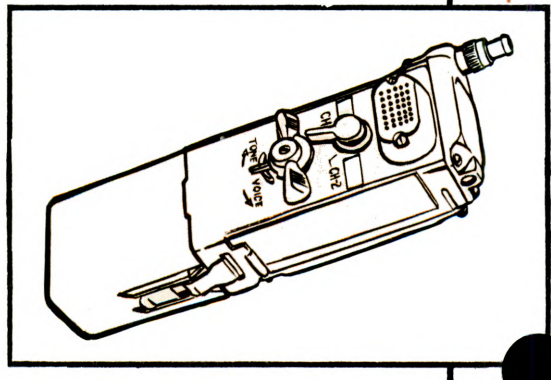
The AN/GRC-160 radio can be mounted in and operated from the carrier, or dismounted and used as a portable radio. When it is dismounted, it is called a PRC-77. When

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mounted, it is powered by the carrier batteries. When dismounted, it requires its own battery (BA-4386). The planning range mounted is 12km. Dismounted it can transmit up to 8km.

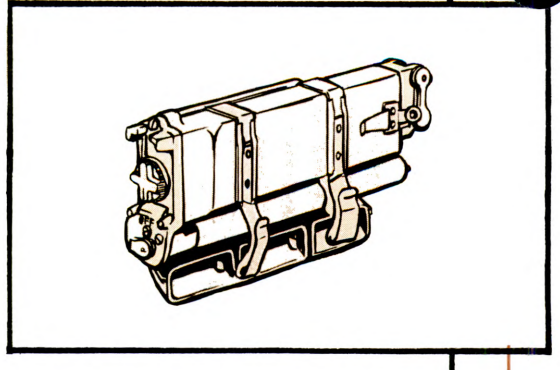
The transmitter (AN/PRT-4) is battery-powered and has two channels. Channel 1 has a range of 1600 meters. Channel 2 has a range of 500 meters. The purpose of the two channels is to allow the platoon leader to transmit only to the maneuver teams or only to the carrier teams if he so desires. For example, the platoon leader may talk to the platoon sergeant (who is controlling the carrier teams) on Channel 1 and talk to the squad leaders (the maneuver teams) on Channel 2. In addition to voice, the AN/PRT-4 can also transmit a tone. Battery life is about 35 hours for the BA-399.

AN/PRT-4



AN/PRR-9

The receiver (AN/PRR-9) will receive Channel 1 and Channel 2, but not both at the same time. It is also battery powered. Two types of batteries can be used in the receiver. The dry cell battery (BA-505U) has a life of about 14 hours. The magnesium battery (BA-4505/U) has a life of about 28 hours.



Both the transmitter and the receiver have set, crystal-controlled frequencies that are changed periodically by the battalion communication platoon.

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RADIOTELEPHONE PROCEDURES

Certain commonly used prowords have distinct meanings and are used to shorten the amount of time in voice communication and to avoid confusion. Use them when talking on the telephone or the radio.

- *OVER*-- "This is the end of my transmission to you and a response is necessary. Go ahead, transmit."
- *SAY AGAIN*-- "Say again all of your last transmission."
- *CORRECTION*-- "An error has been made in this transmission (or message indicated). The correct version is ."
- *I SAY AGAIN*-- "I am repeating transmission, or portion indicated."
- *ROGER*-- "I have received your last transmission satisfactorily."
- *WILCO*-- "I have received your message, understand it, and will comply."
- *OUT*-- "This is the end of my transmission to you and no answer is required or expected."

RULES FOR RADIO AND WIRE COMMUNICATIONS

- **Listen before transmitting (sending).**
- **Make messages short and clear.**
- **Speak clearly, slowly, in natural phrases. Pronounce each word distinctly. If the receiving operator must write, allow enough time for writing.**
- **If jammed (using radio), try to continue to operate and immediately notify higher headquarters by a different means of communication that you are being jammed. Offset the effects of the jamming by moving the radio set.**
- **In all cases of radio and wire traffic, do not waste time--send the message and get off the net.**

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COMMUNICATION SECURITY

Communication security denies or delays unauthorized persons from gaining information of value from telecommunications. It includes--

- Using authentication to insure that the other communicating station is a friendly one.
- Using only approved codes.
- Designating periods when all radio equipment is turned off.
- Restricting the use of radio transmitters. Monitoring radio receivers.
- Enforcing net discipline and radiotelephone procedures. All stations operating a net must use authorized callsigns and prowords; and must limit transmissions to official traffic.
- Selecting radio sites with a hill or other shield between it and the enemy.
- Using direction antennas when feasible.

ECCM

Electronic counter-countermeasures (ECCM) prevent or overcome enemy electronic warfare. ECCM by platoons consists mainly of using proper signal security and antijamming techniques.

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ANTIJAMMING

Radio operators use antijamming procedures to reduce enemy jamming effects.

They are

Recognition.

The first thing an operator must do when his radio indicates interference is to try to find what is causing the interference. He can't immediately assume jamming, because symptoms of jamming are often similar to other types of interference. Removal of the receiver antenna tells him if the interference is being generated internally by the receiver. If interference decreases when the antenna is removed, the interference is jamming.

Continued Operation.

Normal radio operations should be continued once jamming has been identified so that the enemy can't determine the effect of his jamming. The rule is: During jamming, continue operation unless ordered to shut down.

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Reporting

All operators must report jamming to their next higher headquarters by another means of communicating; for example, wire or messenger. A jamming report contains---

- Date and time of jamming.
- Frequencies affected.
- Type and strength of jamming signal.
- Designation of the unit making the report.

THE DOs AND DON'Ts OF COMSEC

- **Do** enforce proper use of authentication systems.
- **Do** use only authorized authentication systems.
- **Do** assume that your radio transmissions are being intercepted by the enemy.
- **Do** use minimum power, minimum transmission time, and proper site selection.
- **Don't** use electrical communication when messengers will serve the purpose. Messengers are the most secure means of communication.
- **Don't** paraphrase or try to talk around the subject. If the man you are talking to can understand, so can the enemy.

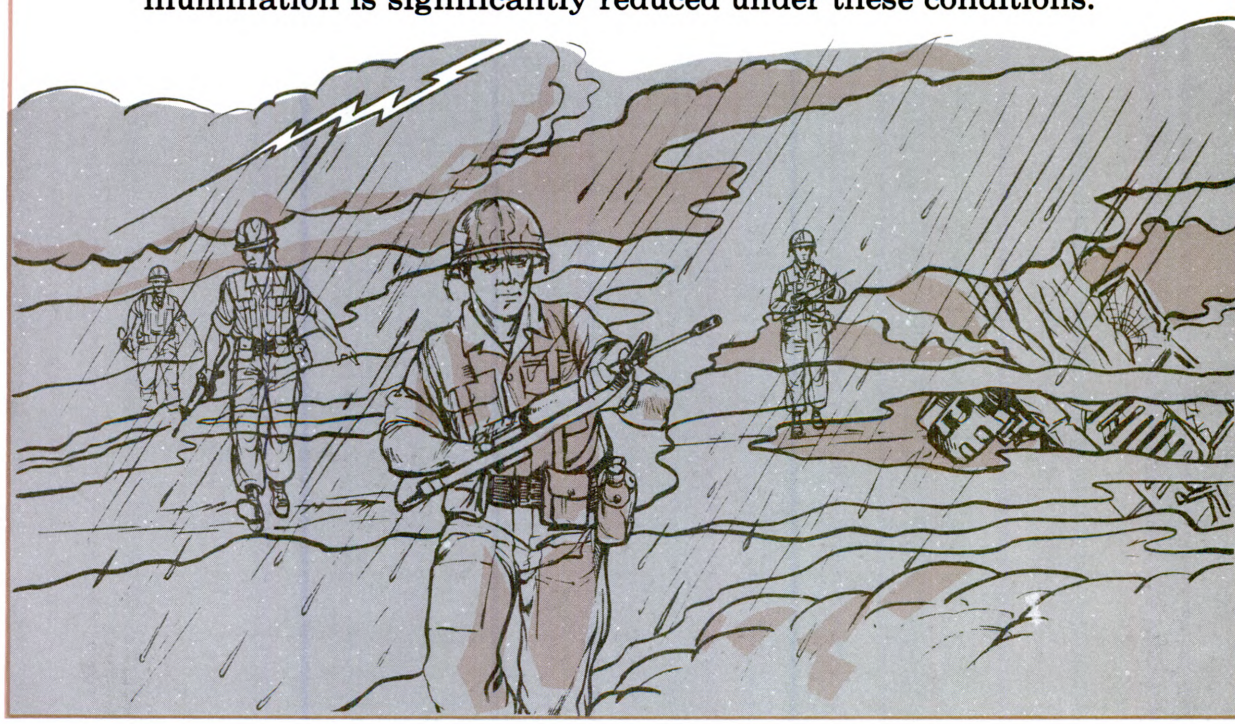
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APPENDIX E

LIMITED VISIBILITY EQUIPMENT AND TECHNIQUES

Section I. GENERAL

Platoons which fight effectively when visibility is limited do so because they have trained long and hard to develop the tactical and technical proficiency required for this condition. On the modern battlefield, there are other conditions of limited visibility which will be almost as common as darkness but less predictable and more difficult to deal with. All armies use smoke and suppressive fire which limits visibility locally. The dust and smoke caused by the fire and maneuver of troops in combat often obscures portions of the battlefield; this obscuration is especially critical to the effective employment of direct fire by overwatching forces. Weather can also limit visibility extensively through rain, fog, snow, or dust. The effectiveness of most current night vision devices and of illumination is significantly reduced under these conditions.



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Limited visibility operations fall into three categories:

- The battlefield is illuminated with visible light at all times. The effects of limited visibility are minimized and operations are conducted using daylight tactics and techniques.
- Maximum use is made of the limited visibility condition to conceal forces, to help achieve surprise, and to reduce the effectiveness of enemy fire. Visible light is not used until the fight begins.
- The battlefield cannot be illuminated because rain, snow, dust, fog, or smoke makes it ineffective.

In either category, the task of the leader is the same--coordinate and control the fire and maneuver of his unit in order to mass combat power. This task, a demanding one even when visibility is good, is more difficult when the ability to see the battlefield is reduced. In addition to increased command and control problems, you must recognize and overcome these additional problems:

- Weapon effectiveness is reduced.
- Target acquisition capability is decreased.
- Differentiation between friendly and enemy units is difficult.
- STANO devices may be neutralized by the enemy.
- Navigation is difficult.

This appendix describes some of the equipment and techniques that can be used to increase combat effectiveness and minimize the effect of the problems listed above. Tactical planning and control in limited visibility operations are discussed in chapters 5 and 6.

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Section II.
STANO DEVICES

Sophisticated surveillance, target acquisition, and night observation (STANO) equipment in the world's major armies has added new dimensions to the modern battlefield. STANO devices enhance a commander's ability to accomplish his mission when he employs long-range devices on terrain overlooking an objective, short-range devices on terrain that restricts long-range observation, thermal imagery devices on terrain when vegetation obscures or obstructs vision, and remote electromagnetic sensors (REMS) in relay or wire mode in dead space or great-distance areas.

STANO devices fall into these categories:

- Aid to observation in an environment **where darkness is the only factor** limiting vision.
- Aid to locating forces and to tracking the movement of moving forces ***(either friendly or enemy)*** **when they are concealed by vegetation, camouflage, darkness, smoke, fog or other precipitation,** or a combination of these factors.
- Aid to the **detection of enemy active STANO** devices in the area of operation.

EQUIPMENT

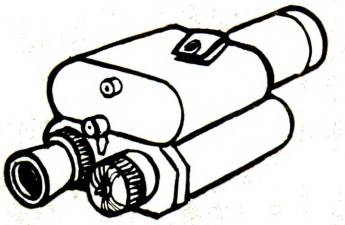
Not all platoons are issued the same STANO devices, but some of the equipment that you can expect to employ are:

BINOCULARS

Binoculars are far superior to the naked eye in daytime, and at night when ambient light (moonlight, flares, searchlight, etc.) exists. With them, you can not see through smoke, dust, or precipitation.

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Six metascopes are authorized per mechanized infantry company. They use an infrared light source that is detectable by other STANO devices. They are used for reading at close range, detecting, and signaling. They are handheld with two separate sections, one transmitter and one receiver. Each weighs 2 lbs and has an 8-hour battery life.

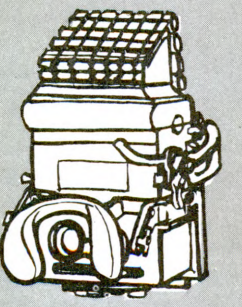


AN/PAS-6 Metascope

Mounted on armored carriers M113A1, M577A1, M106A1, and M125A1.

CAUTION:

Infrared devices are easily detected by the enemy. Don't use them unless there is no other alternative.



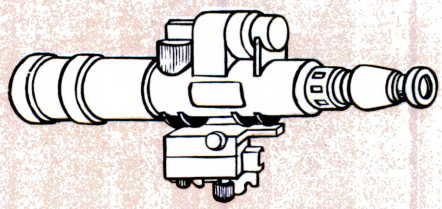
M19 IR Periscope

Starlight Scopes (Image Intensifiers)

Range depends on ambient light levels. Low light levels, rain, fog, smoke, and dust greatly reduce their effectiveness. Low light levels in periods of clear air can be overcome by illuminating with visible or invisible light and by continuing to use image intensifiers. Infrared light gives enough light so the image intensifiers are effective. Looking directly at a visible light source will cause the device to shut off. Operators of image intensification devices develop eye fatigue rapidly and lose night vision.

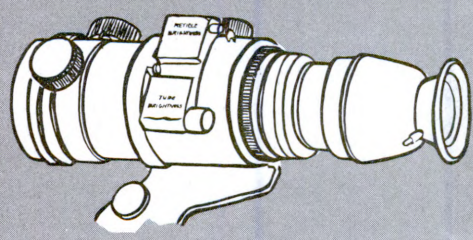
Operators may use devices for at least 6 hours without fatigue when short rest breaks (5 to 10 minutes) are given every 30 minutes. Preferred method is to use two operators and alternate every 30 minutes.

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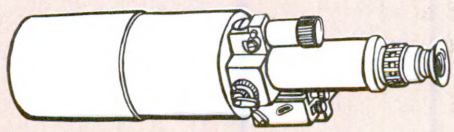
AN/PVS-2

AN/PVS-2 equipment may be mounted on M60 machinegun or M16 rifle. Range 200 to 400 meters depending on ambient light; 18 are authorized in a mech inf co. It weighs 6 lbs with 4x magnification. This model of the starlight scope replaces the AN/PVS-1.



AN/PVS-4

AN/PVS-4 is a small, lightweight telescope-type sight which will replace the AN/PVS-2. It can be mounted on the M14, M16, M60, M72A1, and M203. The range for man-size targets is 400 to 600 meters. It weighs 3.7 pounds.

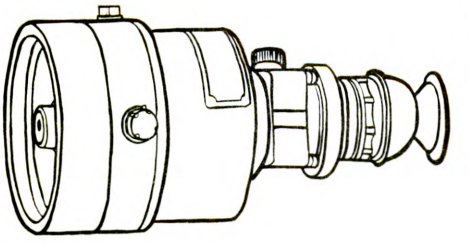


AN/TVS-2

AN/TVS-2 - crew-served, may be mounted on cal .50 machineguns. Range 800 to 1100 meters, depending on ambient light. There are 21 in a mechanized infantry company (7x magnification, 15 lbs). May be used with a tripod.

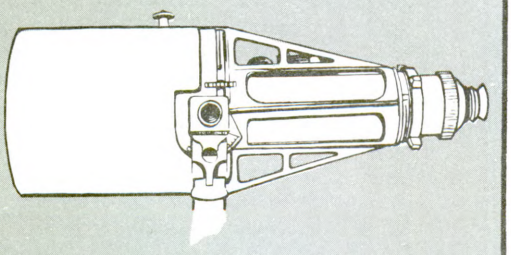
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AN/TVS-5 is a lightweight, battery powered, electra-optical, telescope-type sight which will replace the AN/TVS-2. It may be mounted on the cal .50 machinegun, M139, 20-mm cannon, and the 106-mm RCLR. The range for vehicle-size targets is 1000-1200 meters. The sight will provide firing accuracy equal to that which can be achieved during daytime. It weighs 7 pounds 11 ounces.



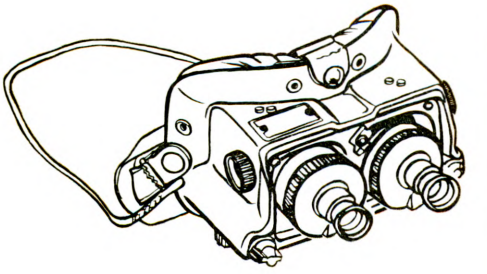
AN/TVS-5

AN/TVS-4 Night Vision Device is a tripod or vehicle mounted, battery powered passive viewing device that utilizes starlight and/or moonlight to enhance night viewing. Range 1200 meters (starlight), 2000 meters (moonlight). The device weighs 34 lbs (viewer only; less tripod), and has 7x magnification. There is one per mechanized infantry company.



AN/TVS-4

AN/PVS-5 Night Vision Goggle (NVG) is a lightweight, face-mounted, passive night vision device for performing tasks at night. It is designed for short range--close-in viewing, driving vehicles, reading maps, administering medical aid, maintenance, and similar tasks. It weighs 1.9 pounds and has a near range of 150 meters.



AN/PVS-5

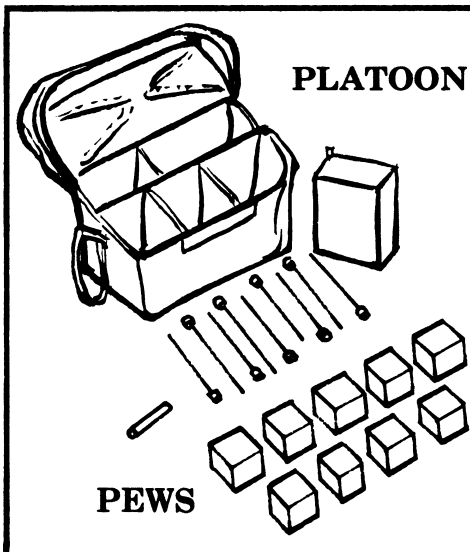
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UNATTENDED GROUND SENSORS (UGS)

UGS are critical to defense when visibility is limited. They are employed on avenues of approach and in dead spaces forward of or between platoons. They have a limited sensor-to-target range so position them with care to exploit their capability. When positioned parallel to the avenue of approach, UGSs can tell the approximate number of troops or vehicles passing the sensors, and their rate of march.

UGSs are sensitive to animal traffic such as deer and dogs, but animals rarely move in deliberate fashion parallel to the sensor field. Well-trained soldiers monitoring the sensors can sometimes differentiate between animals and troops.

PLATOON EARLY WARNING SYSTEM (PEWS)



PEWS

The platoon early warning system (PEWS) includes nine ground-emplanted sensors which transmit a radio or wire signal to a receiving set that indicates: movement in the area, whether movement is foot or vehicular, and which sensor is reporting. This device is ideal for monitoring avenues of approach which are masked by terrain features of limited visibility.

THERMAL IMAGERY DEVICES

Thermal imagery devices are true limited visibility devices that penetrate fog, smoke, and dust as well as darkness. As they become available they will greatly increase your ability to operate when your ability to see with the naked eye is reduced.

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Section III.
BATTLEFIELD ILLUMINATION

Artificial lighting of the battlefield is the simpliest way to penetrate in darkness. The intent is to illuminate or silhouette enemy troops without illuminating your troops. However, there is a chance that you will be adversely affected by your own light source. So, you must know the characteristics of available artificial illumination systems and how they are influenced by darkness, weather, and terrain.

CATEGORIES OF ARTIFICIAL LIGHT

Visible light, such as flares and searchlights, requires no special equipment other than the light source itself. It is used most to continue daylight operations, when troops are untrained, when planning time is limited or to offset an enemy advantage in night vision devices. It is the simplest form of illumination. The disadvantage of using visible light is that at close ranges, it permits the enemy to see as well as the friendly force.

Invisible light is derived from a near infrared source or pink light filter and is nearly impossible to see with the unaided eye. It has greater security than visible light because a device is required to detect it.

EMPLOYMENT CONSIDERATIONS FOR ARTIFICIAL LIGHT SOURCES

TRIP FLARES

- Primarily defensive in nature, excellent for early warning.
- Trip flares can be thrown; can be detonated remotely by pull-pin or trigger-release devices.
- Not suitable for continuous illumination.
- Very likely to start fires; if remote detonation is required, remove flammable materials.

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ILLUMINATING SHELLS (PARACHUTE-SUPPORTED FLARES)

After the parachute opens, wind direction and force determine what ground area is lighted. As shells are normally set to detonate at a height of burst that allows the flare to burn out just before it reaches the ground, the "hang time" allows the wind to drift the flare. As drifting flares may illuminate friendly units, the FO must adjust the detonation point either by off-setting it or lowering the height of burst. If fire is a hazard, don't lower the height of burst. In either case, strong winds necessitate an increase in the rate of fire for continuous illumination.

- Fog, dust, smoke, and falling snow decrease the illumination.
- Don't detonate over or to the rear of friendly troops because it silhouettes the friendly unit and the cannister may hit friendly troops.
- When fog, haze, dust, smoke, or falling snow limit visibility, low airburst shells may be used as navigation aids because the intense light is visible although it may not provide any illumination.

SEARCHLIGHTS

- Searchlights are found on all current tanks and in searchlight batteries of corps artillery.
- Searchlights can provide three types of illumination--white light, near infrared light, and pink light. Depending on the terrain, enemy, and cloud cover, searchlights may be employed to provide direct, diffused, or reflected illumination.
- They can be used to--
  - **mark targets, objectives, and boundaries.**
  - **increase deception by illuminating an area or point outside the area of action.**
  - **orient aircraft.**

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Section IV.
CONTROL DURING LIMITED VISIBILITY

To overcome the problems generated when units cannot see the battlefield, leaders must employ every available technique to control their units.

IDENTIFICATION

- Troops can be identified visually, by challenge and password, by wearing luminous or reflecting tape on the back of helmets, and by standard audible or visual signals.
- Unit use recognition means that include radio, infrared, and radar in conjunction with established audible and visual signals.

MOVEMENT

- Maintain visual contact by reducing the intervals between men. Night vision devices normally allow units to retain good dispersion while maintaining visual contact.
- Slow down and use guides.
- Leaders move forward where they can control direction and speed.
- Establish SOPs for audible and visual signals.

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NAVIGATION

- Use guides when possible.
- Use compasses, radar, infrared beams, and landmarks to maintain direction.
- Colored smoke is easy to see and guide on in smoke, dust, and fog.
- Preplanned artillery spotting rounds help determine location and direction, but if used too extensively, artillery fire may reveal a unit's location.
- Radar and infrared devices can mark unit boundaries.

FIRES

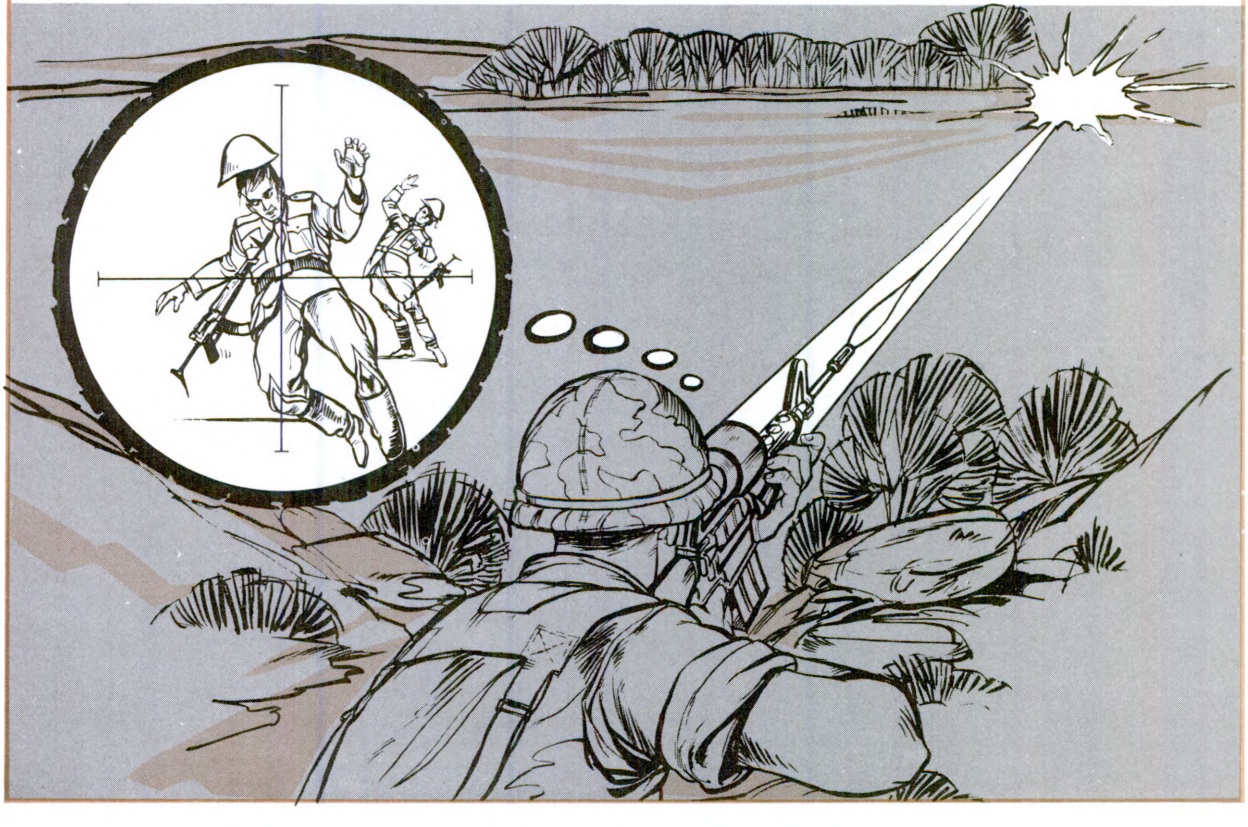
- Use tracers to designate targets.
- Use range cards when stationary.
- Use pyrotechnic signals to call for lifting, or shifting fire, or to call for fire on suspected targets.
- In stationary positions, wire is the most reliable means of controlling firepower.

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Section V.
PREPARING FOR LIMITED VISIBILITY OPERATIONS

Preparation for limited visibility operations includes--

- Keeping the attack plan simple.
- An illumination plan. If artillery or mortar illumination is used, you must know when and under what circumstances you can call for it.
- A surveillance plan using visual, infrared, and audio devices.
- A daylight reconnaissance to select primary and alternate positions, when time permits.



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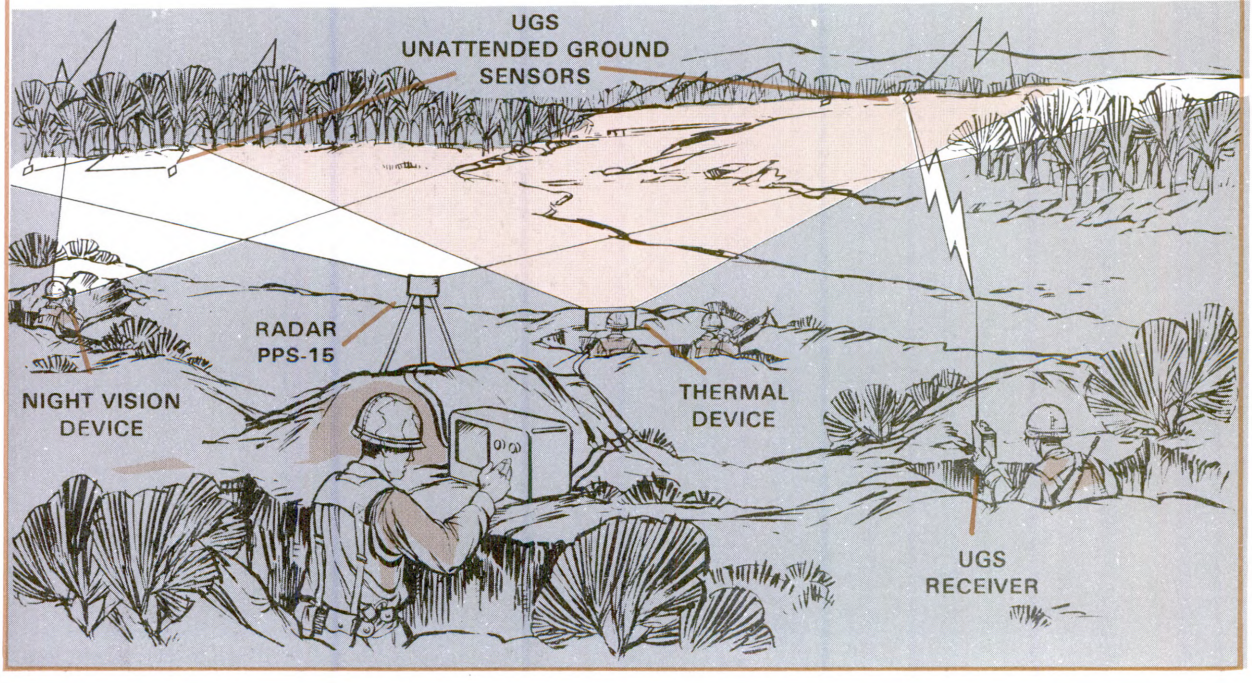
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Section VI.
THREAT FORCES AND LIMITED VISIBILITY

Threat forces move and conduct limited visibility offensive operations as a continuation of daylight operations. Extensive use is made of guides and active infrared sources to control troops as they move and deploy. At night, threat forces use avenues of approach along well-defined terrain features to ease control. Threat troops realize their extensive use of active infrared vision devices makes them vulnerable to rapid detection by our troops once they move from behind cover. Therefore, they are prepared to use extensive illumination once contact is made.

Threat troops may conduct a deliberate breakthrough attack at night without illumination initially. This kind of attack is normally conducted by dismounted infantry after extensive planning and preparation.

A successful defense against the threat depends on integration of all STANO capabilities to provide early warning. We must maximize our night vision and detection capabilities and inflict casualties and create confusion in the enemy formations as far away from our positions as possible.

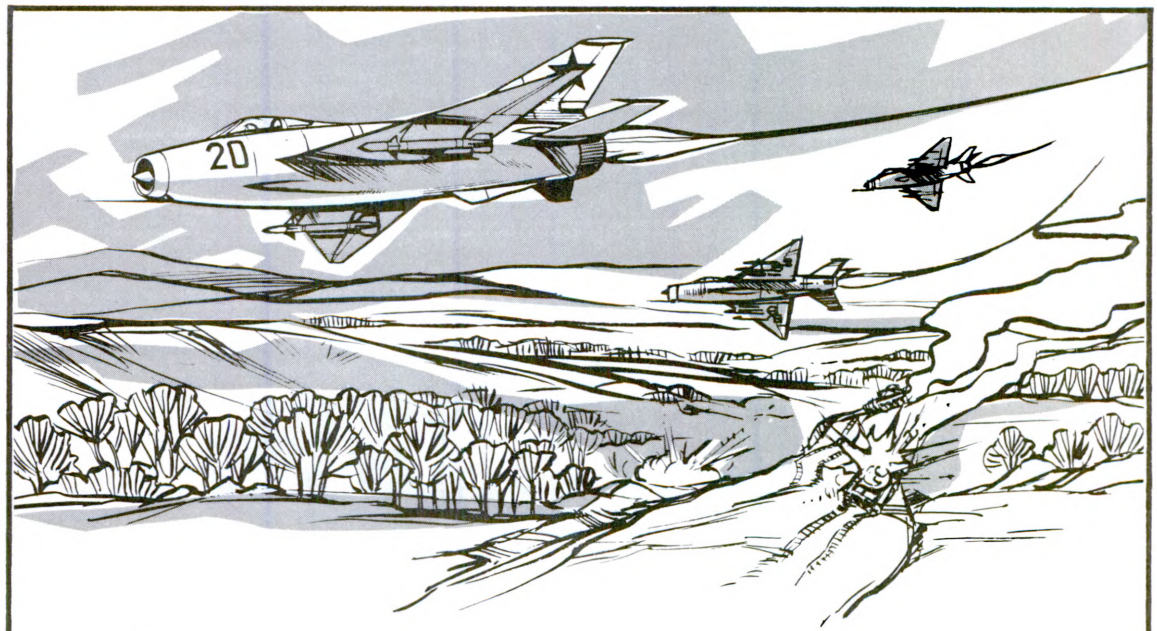


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APPENDIX F
AIR DEFENSE



The proliferation of enemy weapons extends to his air arm. We cannot plan on fighting without considering the air threat. **(Our future enemy may be able to control protions of the airspace over the battle area.)** If you can be seen from the air, his fighters will hit and kill you. To be effective under these conditions, platoons must make maximum use of cover, concealment, camouflage, dispersion, and early warning. They must also be proficient in the use of their weapons in an air defense mode. THE BEST PROTECTION AGAINST AIR ATTACK IS CONCEALMENT. Enemy aircraft will attack any ground force whose location has been discovered by either ground or air reconnaissance. Air reconnaissance includes aircraft or drones using air photography or infrared line scan. At all times give a high priority to concealment. The sighting of a few soldiers can lead to the disclosure of a whole unit, even it it is well concealed.

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Attacks will be swift and often unexpected, therefore, early warning of a probable attack is necessary to give troops a chance to take cover. This warning may be passed through normal command channels, or given by local OPs or air sentries. All OPs should have air watch included in their duties, and alertness for enemy aircraft required as part of normal observation. They will not always have a good view of the air around them, in which case a special air guard must be detailed. All vehicles should have an air guard detailed. High-speed, low-flying aircraft are difficult to identify.

Troops must be trained to be proficient in quick aircraft recognition. Hostile low-flying aircraft may appear suddenly from behind low hills, belts of trees, or haze. To gain surprise, they will try to attack you with the sun behind them.

The alarm must be given immediately if troops working in the open are to have any chance of taking cover. This warning is the responsibility of every man in the area and will be passed by whistle, voice, radio, or any other method. The whistle signal is a series of short blasts. When the alarm is given, all troops except those in close contact with the enemy must immediately take cover, if possible, below ground level, and remain there until the all-clear is given.

Evasive maneuver is the initial reaction of mounted units under air attack. Each vehicle turns away from an airplane's axis of attack and seeks cover and concealment. They then shoot at attacking aircraft as appropriate.

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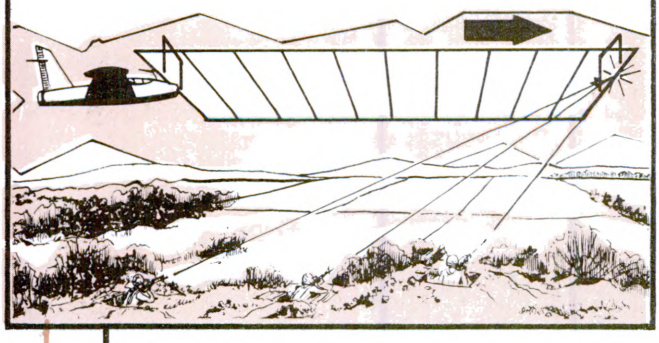
ENGAGEMENT OF HOSTILE AIRCRAFT

Rules for engaging aircraft will vary, as established by higher commanders. The following rules of engagement are a guide to normal practice:

- The first requirement of engagement is to positively identify the aircraft as hostile.
- Each soldier must be trained to recognize hostile and friendly aircraft. If supporting air defense artillery crews engage the aircraft, the infantry may also engage.
- If aircraft attack your unit, return fire. Otherwise, hold fire to prevent disclosing the unit's location.
- Commanders may impose restrictions on air defense fires due to friendly aircraft in the area or the need to hide a unit.
- Small arms fire (cal .50 and smaller) may be returned against attacking aircraft during or after the initial attack. Soldiers should not try to track aircraft, but should fire in front of the aircraft so it will fly through the fire. Fire should be opened only on order of the squad leader. Whenever possible, fire should be controlled by the platoon leader.

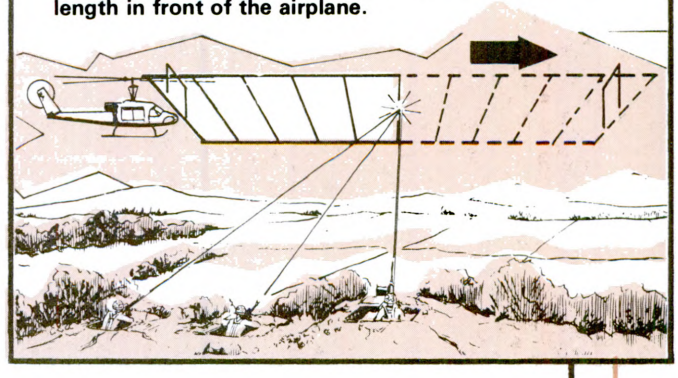
HIGH-PERFORMANCE AIRCRAFT

When engaging jet aircraft, aim and fire all weapons at a point one football field length in front of the airplane.



LOW-PERFORMANCE AIRCRAFT

When engaging helicopters or propeller-driven aircraft, aim and fire all weapons at a point half a football field in length in front of the airplane.

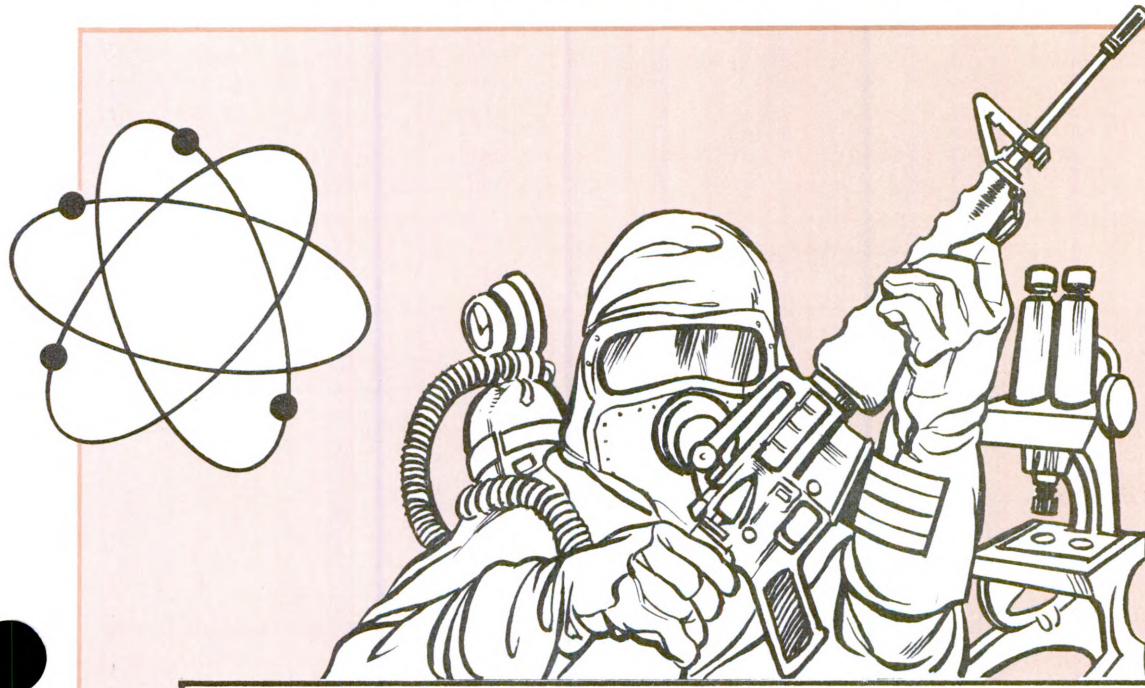


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APPENDIX G
OPERATING IN AN NBC ENVIRONMENT



The purpose of using nuclear, biological, or chemical (NBC) weapons on the battlefield is to produce casualties, destroy or disable equipment, and to hinder operations. This appendix prescribes protective measures for an NBC environment. Included are active protective measures to neutralize enemy weapons' capabilities and his intelligence effort, and passive protective measures taken before, during, and after an action to prevent detection or to minimize the effect of enemy attack.

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PROTECTIVE MEASURES IN NUCLEAR WARFARE

Nuclear detonations have three primary effects – **BLAST, THERMAL RADIATION** (heat and light), and **NUCLEAR RADIATION.** Blast injuries are caused by collapsing buildings or foxholes, flying debris, or the high winds.

Blast damage to material is due primarily to violent displacement of the material by the shock wave. Thermal radiation casualties are caused by burns resulting from flash heat. Nuclear radiation casualties result from damage to or destruction of living body tissue.

GENERAL PROTECTIVE MEASURES

TRAINING

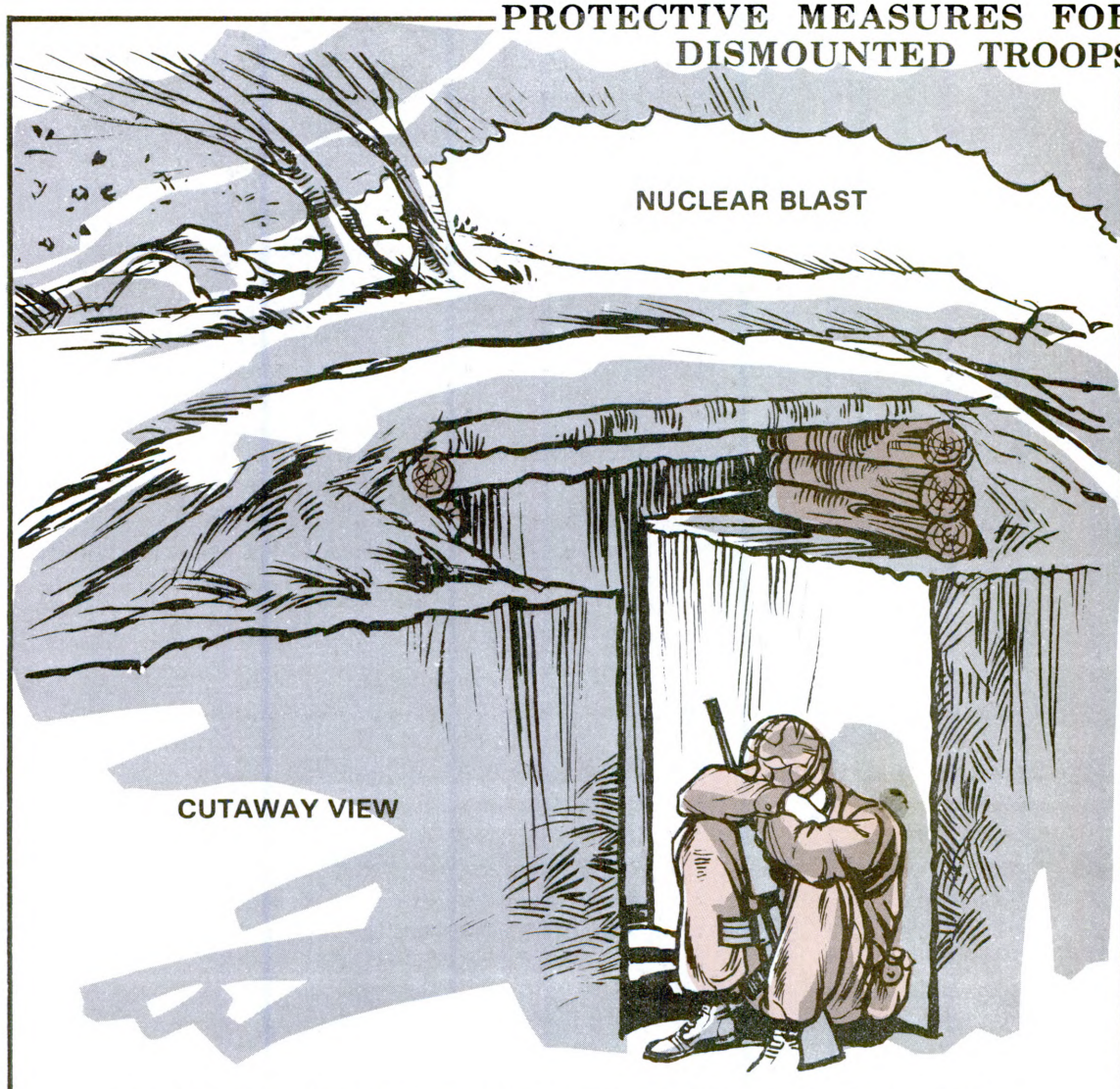
The nuclear weapon, although a tremendously destructive military device, is not a weapon against which there is no defense. This fact must be firmly established early in the training of any unit. The more each soldier knows about weapons' capabilities, the more effective he will be on the nuclear battlefield and the greater will be his chances for survival. Training must stress the importance of discipline, camouflage, cover, concealment, dispersion, and immediate reaction for battlefield survival. (See FM 21-10 for small unit procedures, and FM 21-41 for individual protective measures.)

PROTECTIVE MEASURES FOR MOUNTED TROOPS

Armored personnel carriers protect men against the effects of nuclear explosions. There should be no loose material or equipment in the carrier that might fly around and cause injuries. Occupants should wear helmets. The protection against nuclear effects is generally the same as that afforded by a tank except for a lesser degree against nuclear radiation.

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PROTECTIVE MEASURES FOR DISMOUNTED TROOPS



A soldier's best protection against nuclear attack is to be dug-in. Defense positions are prepared when the tactical situation permits. The immediate reflex action of a person caught in the open at the time of a nuclear explosion should be to hit the ground or bottom of a foxhole facing away from the burst. Close eyes and protect exposed skin from heat rays as much as possible. Remain down until the blast wave passes then check for injury and equipment damage and prepare to continue the mission.

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PROTECTION AGAINST FALLOUT

A surface or sub-surface nuclear explosion causes the radioactive hazard of fallout. The explosion lifts tremendous quantities of earth into the nuclear cloud formed at the time of detonation. This material is highly radioactive and particles are carried downwind and eventually fall back to earth. These particles are known as fallout. The lingering hazards from fallout may cover many square miles. The presence and intensity of residual radiation is determined by radiological monitoring and survey. Procedures for radiological monitoring and survey must be specified in unit SOPs and based on FM 3-12 and FM 3-22. If fallout is predicted for your unit's area, the initial reaction will be to button-up or dig-in and monitor radiation levels. When residual radiation is detected, platoons continue on their missions, relocating in their sectors to minimize radiation exposure, if required, and report the presence of radio-activity to the commander. If it is necessary to remain in the fallout area, the protective measures against the other effects discussed previously will be used against fallout. Armored vehicles must be buttoned up completely with the crews remaining inside.

Shelters should have overhead cover. The period of time a unit may stay in a contaminated area depends on the total dose of radiation the troops can receive and still remain effective, the intensity of the radiation, and the protection available. The amount of time spent away from cover should be kept to a minimum.

FALLOUT PROTECTION RULES

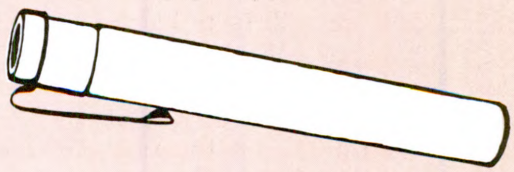
1. Avoid contaminated areas.
2. Wait for fallout to decay. A 7-hour wait will allow a 100 rad reading to drop to a 10 rad reading.
3. When fallout is predicted, dig-in or button-up. Overhead cover is a must.
4. Keep track of how long your men are exposed and report this to your commander.

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MONITORING RADIATION LEVELS

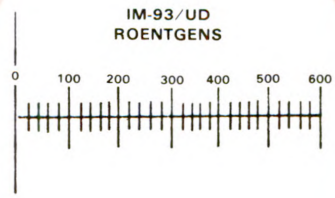
When operating in a nuclear environment, one of the leader's duties is to closely monitor the amount of radiation received by his unit. When operating as part of a larger unit, this may be done for you. However, you must be prepared to do it if necessary.

DOSIMETER



The IM-93UD Dosimeter may be issued to you to monitor the radiation received by your men. It is small (about the size of a fountain pen), light, and simple to operate.

DOSIMETER SCALE



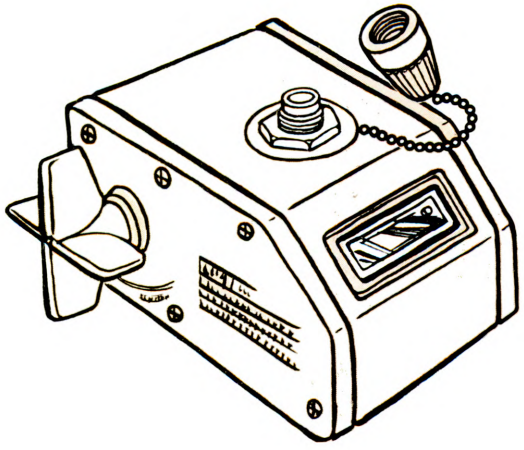
To read the dosimeter and determine the radiation dosage received, remove the dust cover and hold the dosimeter to the light. Read the scale and report the reading to your commander.

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Keep the dust cover on the dosimeter unless you are taking a reading. If the dust cover is lost, use some expedient such as tape to close the open end.

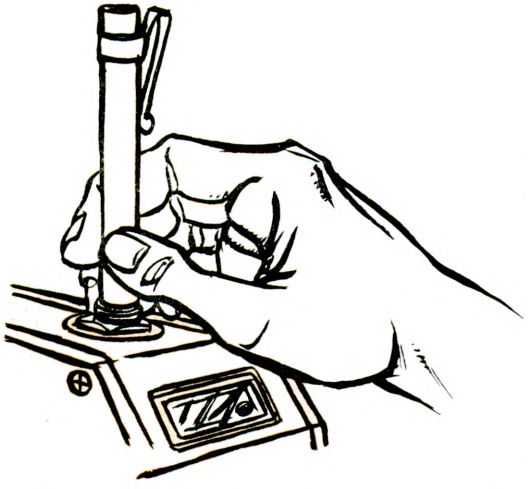
The dosimeter must be charged at least every 2 or 3 days of use (preferably every day) or when the dosage rate reaches or exceeds 500 rads on the scale. Recharging times normally are designated by the unit SOP.

The radiac detector chargers PP-1578/PD and PP-1578A/PD are used to charge the dosimeter. One charger will probably be issued to your platoon.



CHARGER

To charge your dosimeter, remove the dust cover and place the dosimeter on the charger. using a flashlight or other strong light source to illuminate the scale on the dosimeter, turn the handle on the charger until the indicator on the dosimeter is set at zero.



DOSIMETER ON THE CHARGER

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PROTECTION AGAINST CHEMICAL AND BIOLOGICAL ATTACK

You must train to apply protective measures against toxic chemical and biological attack. SOPs should include actions to be taken in the event of such attack. Protective measures should provide for an adequate warning system; for use of individual and unit protective equipment; for facilities for prompt decontamination of men, equipment, and supplies; and for prompt treatment of casualties.

PROTECTIVE EQUIPMENT

A soldier's primary protection against chemical attack is his protective mask. The mask protects against inhalation of chemical and biological agents.

Protection against liquid chemical agents requires the wearing of chemical protective clothing as well as the mask. Protection is provided by wearing the mask with hood, either one set of chemical protective overgarments or chemical protective shirt and trouser liners, chemical protective socks with chemical resistant boots and chemical protective gloves.

MISSION-ORIENTED PROTECTIVE POSTURE

Once chemical agents have been employed or while the threat of enemy chemical attack exists, the unit commander decides whether to keep all troops, or only a certain number, masked and in chemical protective clothing. This decision, called the **mission-oriented protective posture** (MOPP), is based on the chemical threat, mission of the unit, type of activity required, and temperature. Whenever possible, the commander specifies the degree of protection before the mission. He may subsequently direct that the protection be modified, according to his estimate of the situation and the operational limitations.

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The MOPP level directed by your unit commander will determine what equipment you wear/use and what precautionary measures you employ. MOPP procedures are normally stated in unit SOPs. The chart below is an example of what protective clothing/equipment could be required under various MOPP conditions.

MOPP LEVEL	CLOTHING
1	Fatigues with protective mask.
2	Fatigues with protective mask, hood, govles, and body armor.
3	Overgarment over fatigues or fatigues over protective liner.
4	Same as level 3, plus mask, hood, gloves, and body armor.

BIOLOGICAL ATTACK

Definite information on the employment of biological agents by the enemy is disseminated from higher headquarters. Each squad must be alert to the danger and report promptly the unusualy occurence of diseases. The best local defense against biological warfare is strict enforcement of all preventive medical and sanitation measures and high standards of personal hygiene.

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DECONTAMINATION

Chemical, biological, or radiological (nuclear) contamination may cause casualties; restrict the effective use of terrain, buildings, or material; or hinder operations. A decontamination operation may be conducted to reduce the overall hazard from CBR contamination to allow the mission to be accomplished. The decision of a unit commander to carry out a decontamination operation will be based on the effect it will have on the unit mission. The expense in materials, time, and labor involved in the decontamination operation must be considered and compared with the time lost to the unit mission in avoiding or bypassing the contamination. (These decisions will be made by senior commanders, but ultimately will be implemented by platoons and squads.)

RADIOLOGICAL DECONTAMINATION

Nuclear fallout is a solid material and is not absorbed by a man or his equipment. The most rapid method of decontaminating men and equipment is by brushing off and washing off.

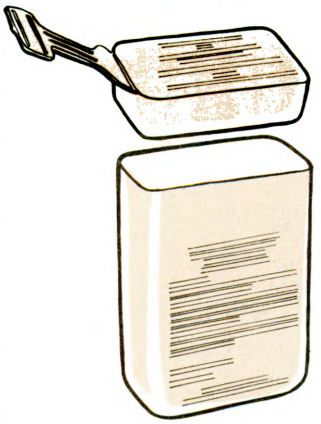
Use the same procedure for decontaminating vehicles and key weapons. Loose particles are brushed off and the vehicle is cleaned by washing or scrubbing with steam or water and detergents.



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CHEMICAL DECONTAMINATION

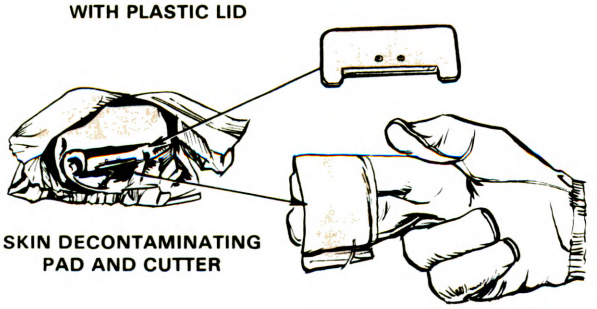
The ABC-M13 Individual Decontamination Kit



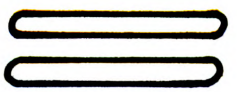
KIT CONTAINER WITH PLASTIC LID



TWO CLOTH DECONTAMINATING BAGS WITH DYE CAPSULE INSIDE



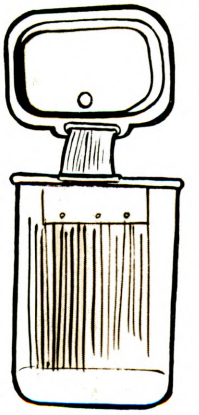
SKIN DECONTAMINATING PAD AND CUTTER



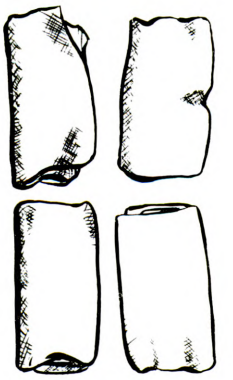
WIPING STICKS

The ABC-M13 Individual Decontamination Kit is used by the soldier for decontaminating of his person, clothing, and equipment. The M258 Skin Decontaminating Kit is being issued to augment the M13 kit

DECONTAMINATING KIT, SKIN, M258



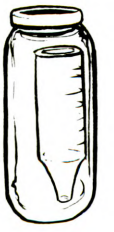
CASE & COVER FRONT



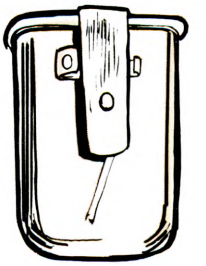
GAUZE PADS



DECON SOL. I



DECON SOL. II



CASE & COVER BACK

The skin pad removes liquid chemical contamination from the skin by absorption. The cloth bags neutralize droplets and vapors of chemical agents on clothing and equipment by chemical action. A dye capsule in the bag, when crushed and kneaded into the chemicals in the bag, indicates liquid chemical agent contamination if a red to brownish-red color develops.

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WARNING

Do not let any of the powder from the skin pad or cloth bag enter the eyes or mouth. Wear protective mask and gloves when using the cloth bag. After decontaminating the hands, wear protective gloves when using the cloth bag for decontaminating clothing and equipment.

INDIVIDUAL DECONTAMINATION

Chemical agents require additional measures. If your eyes or face have been contaminated (for example, from a spray attack), you should first obtain overhead cover (if possible) and then follow these steps:

1. Flush your eyes with water from your canteen.

2. Clean your skin by using the skin pad from the M13 decontamination kit. If necessary, use the M13 skin pad to decontaminate the inside of the protective mask that comes in contact with the skin.

3. If skin other than face has been contaminated, decontaminate it with the skin pad from the M13 kit or soap and water.



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DECONTAMINATION OF INDIVIDUAL EQUIPMENT

Protective mask. Decontaminate the external parts of the mask with the cloth bag from the M13 kit; decontaminate the interior surface of the mask with the skin pad from the M13 kit.

Clothing. Clothing is decontaminated by using the cloth bag from the M13 kit. Use the cutter from the M13 kit to remove spots larger than ⅛-inch from the clothing.

Boots. Treat with vesicant gas-resistant leather dressing after washing with soap and water.

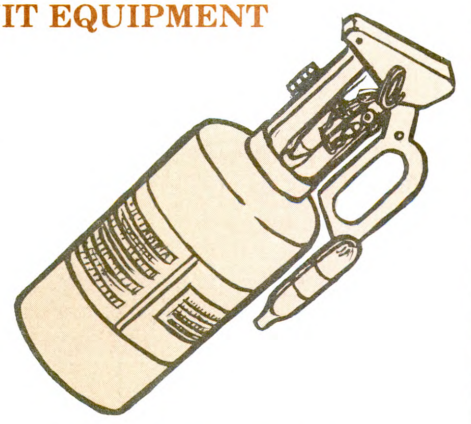
Metal equipment. Helmets and entrenching tools are decontaminated with DS-2, soapy water, or the cloth bag from the M13 kit.

Weapons. Decontaminate with the cloth bag from the M13 kit. After decontamination, weapons are disassembled, washed in soapy water, rinsed, dried, and oiled to prevent corrosion.

Web equipment. If lightly contaminated, decontaminate as you would individual equipment. If heavily contaminated, it must be destroyed and replaced.

DECONTAMINATION OF UNIT EQUIPMENT

Lightly contaminated vehicles may be decontaminated by airing. Each tactical vehicle is authorized one M11 decontamination apparatus that contains 1 1/3-quarts of DS-2 decontaminating agent. It is used to partially decontaminate parts of the vehicle that must be touched such as controls.



M11 DECONTAMINATING KIT

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A complete decontamination of a vehicle is done using DS-2, soapy water, solvents, or slurry. These agents are issued by the platoon sergeant.

Key weapons are decontaminated using DS-2, soapy water, solvents, or slurry. Ammunition is decontaminated with DS-2 solution, wiped with gasoline soaked rags, and then dried. If DS-2 is not available, ammunition should be washed in cool soapy water, then dried thoroughly. After decontamination, weapons are disassembled, washed, rinsed, dried, and oiled to prevent corrosion.

Optical instruments are decontaminated by blotting with rags, wiping with lens cleaning solvent, and then allowing them to dry.

Communication equipment is decontaminated by airing, weathering, or hot air (if available). The metal parts of field telephones and radios are decontaminated with DS-2 and then wiped with rags.

BIOLOGICAL DECONTAMINATION

Decontaminate vehicles using any of the following methods:

1. Apply detrochlorite. Leave on 30 minutes, then remove by washing with a stream of water.
2. Wash with detergent and high-pressure water stream.
3. Steam clean, using detergent.



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WEAPONS

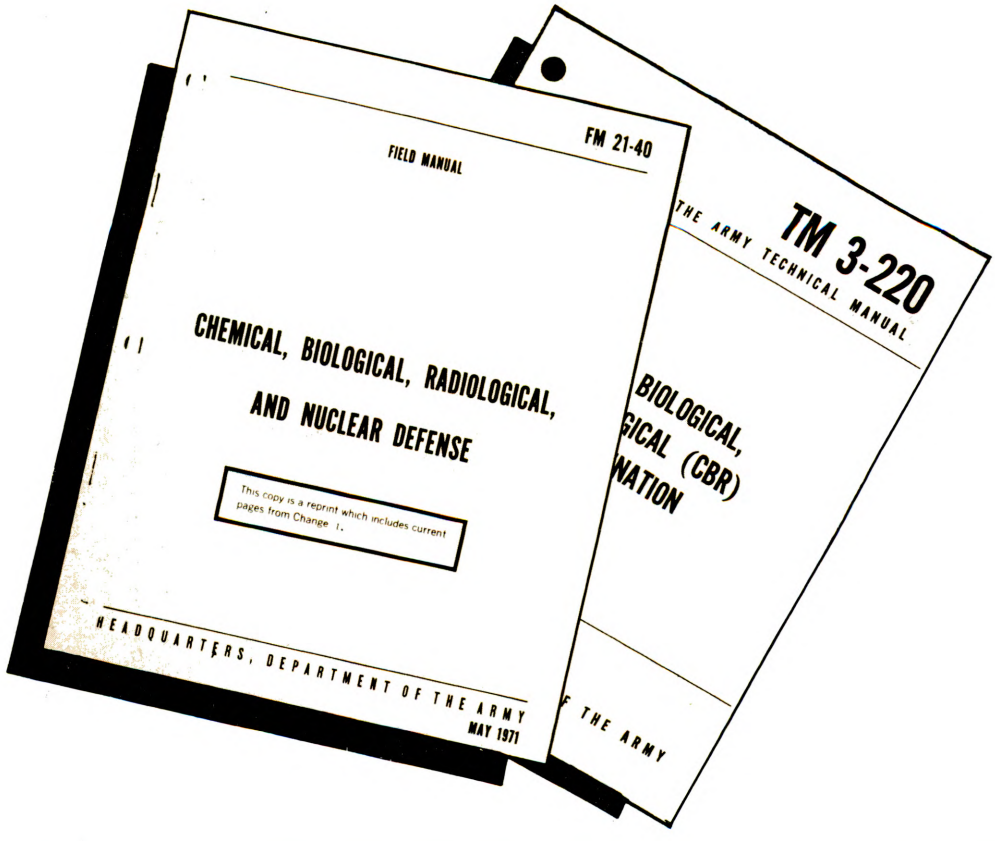
Use detrochlorite, household bleach solution, or soap and water. Dry and lubricate working parts and surfaces after decontamination.

CLOTHING AND INSTRUMENTS

Place in plastic bag with ETD-flourinated hydrocarbon mixture (issued by supply). Leave in bag 8 hours, then air for 1 hour.

DECONTAMINATION MEASURES

FM 21-40 and TM 3-220 contain detailed procedures for decontamination of men, equipment, and vehicles.



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APPENDIX H
WORKING WITH HELICOPTERS

Mechanized infantry platoons and squad normally operate from their carriers. However, they can be called on to conduct air assault missions, to send out or pick up patrols by helicopter, and to use helicopters for resupply and evacuation of casualties.

ORGANIZATION

Before you can lift your platoon or squad by helicopter, you must know how to organize for movement.

The amount of men, weapons, and equipment that can be carried aboard a helicopter varies and is based on factors such as temperature, humidity, and fuel load. What can be carried is called the allowable cargo load (ACL). When you are alerted for movement by helicopter, you will be told what the ACL is for that mission.

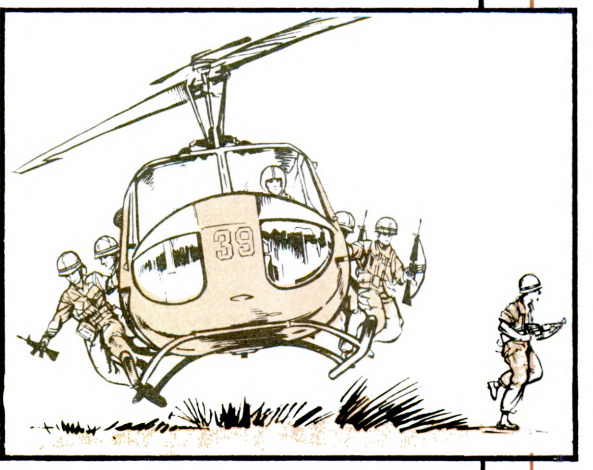
Once you know the ACL, organize your men and equipment into aircraft loads. Each load is called a "chalk." As you organize chalks, consider these points:

- Each chalk must have a leader. The chalk leader sees that each man knows how to get on and off the aircraft, that everything is ready to load, and that everything gets loaded.
- Cross-load key men, weapons, and equipment on different aircraft so that you can continue to operate even if you lose a chalk.
- Ride in the lead aircraft. Platoon leaders ride in the first chalk so they can be in control of the first troops on the ground. When a squad has to move in two chalks, the squad leader goes in the first one.
- When you have more than one chalk, number them to aid in the control of the preparation, loading, and movement.

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LOADING

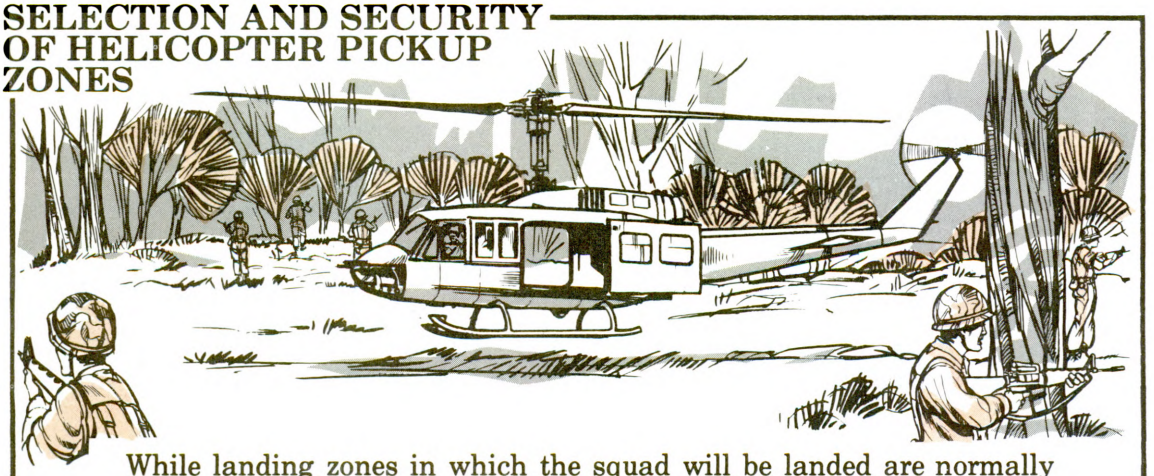
Helicopter loading must be fast and safe. Unless prohibited by safety, load troops from both sides of the aircraft. Equipment carried aboard must be secured either by hand or by tie-downs. Seat troops according to prescribed seating procedure. All safety belts must be fastened.



UNLOADING

When approaching the landing zone (LZ), the pilot or crew chief will orient the chalk leader on the LZ. After landing, or on stabilizing the aircraft, the pilot or crew chief will give the signal to exit the aircraft. Troops then unfasten safety belts and exit rapidly but carefully. If the helicopter cannot land, it will hover while troops off-load under the direction of the crew. Normally, two men exit from opposite doors at the same time to avoid tilting the aircraft. After exiting the aircraft, troops should move away from the rotor blades.

SELECTION AND SECURITY OF HELICOPTER PICKUP ZONES

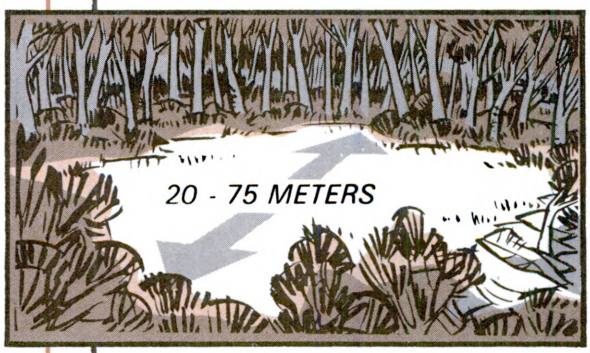


While landing zones in which the squad will be landed are normally selected by senior commanders, squads must often select and secure their own helicopter pickup zones. Patrols and antiarmor ambushes are operations which may require helicopter extraction on pickup zones selected and secured by a squad.

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SELECTION

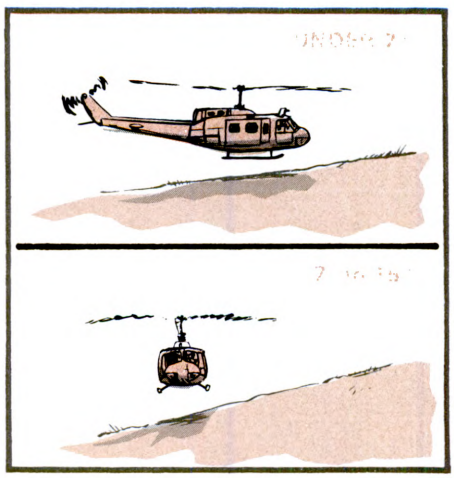
In selecting a helicopter pickup zone, consider the following:



Size of Landing Point. A helicopter requires a relatively level area 20-75 meters in diameter for landing, depending on the type of helicopter used. Helicopters usually require more usable landing area at night than during the day.

Number of Helicopters Used. Consider the number of helicopters required to land simultaneously at one location. It may be necessary to establish two landing points, or to land aircraft in successive flights at a single point if a single multi-aircraft point cannot be prepared.

Surface Conditions. The surface must be firm enough to keep helicopters from bogging down, creating excessive dust, or blowing snow. Rotor wash on dusty, sandy, or snow-covered surfaces may cause loss of visual contact with the ground and should be avoided, especially at night. Loose debris that may cause damage to the rotor blades or turbine engines must be removed from the pickup zone.



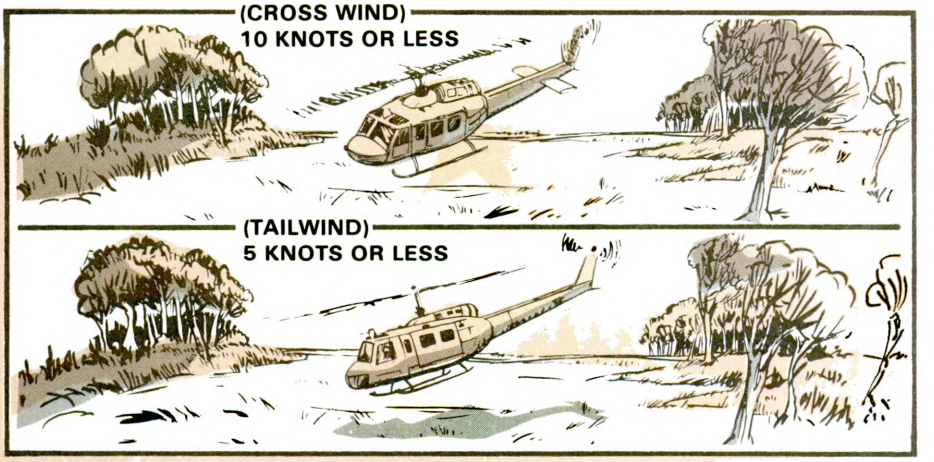
Ground Slope. Normally, if the ground slope is greater than 15 degrees, helicopters cannot land safely. When the ground slope is under 7 degrees, helicopters should land upslope. In areas where the ground slope is from 7 to 15 degrees, aircraft must land and park sideslope. It is sometimes possible, however, for helicopters to hover over ground slopes inclined greater than 15 degrees to load troops or supplies.

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Approach/Departure Directions. The direction of landing should be generally into the wind, especially at night. However, if there is only one satisfactory approach direction due to obstacles or tactical situation, or to make maximum use of available landing area, most aircraft can land with a crosswind (10 knots or less) or tailwind (5 knots or less). The same considerations apply to departure of aircraft from a pickup zone.

BEST TAKEOFF/LANDING DIRECTION





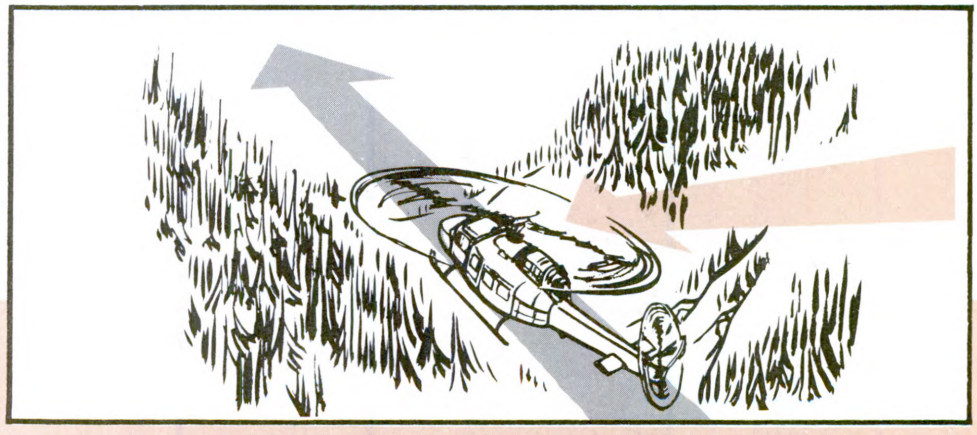
SATISFACTORY TAKEOFF/LANDING DIRECTION

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Prevailing Winds. Of the two factors--***approach/departure route*** and ***prevailing wind***-- the best ***approach/departure route*** is more important unless the crosswind exceeds 10 knots. The ability to land and take off downwind will vary, depending on the type of aircraft. Smaller aircraft can accept less crosswind or tailwind than larger, more powerful aircraft.

TAILWIND
CROSSWIND





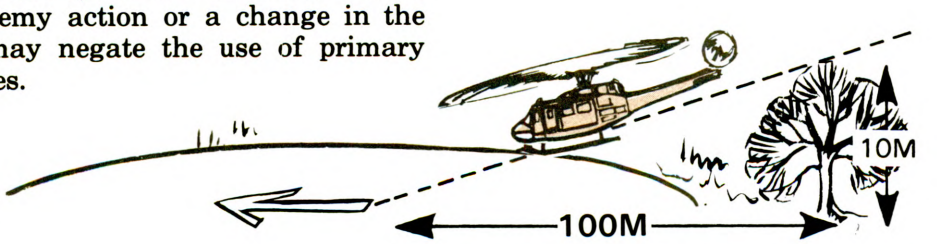
IF YOU HAVE ONLY ONE ROUTE IN/OUT, WIND BECOMES VERY IMPORTANT

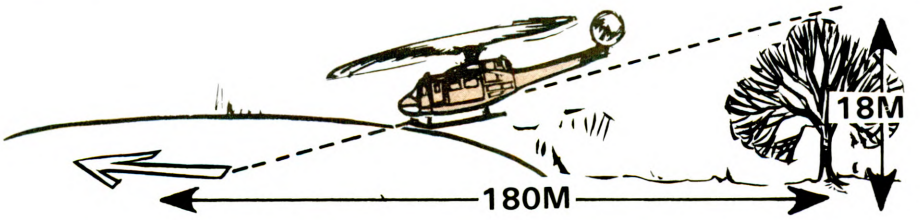
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Loads. Most helicopters cannot ascend or descend vertically when fully loaded; therefore, a larger landing point and better approach and departure routes are required for fully loaded helicopters than for lightly loaded ones.

Obstacles. Landing points should be free of tall trees, telephone and power lines, or similar obstructions on the approach or departure ends of the landing point that may interfere with landings or takeoffs. Obstructions within the landing point (i.e., rocks, stumps, holes) that cannot be eliminated must be clearly marked. Use an obstacle ratio of 10 to 1 (i.e., a 10-meter tree needs 100 meters of horizontal clearance from landing or takeoff points if aircraft must approach or depart directly over it).

When feasible, select alternate zones because enemy action or a change in the situation may negate the use of primary pickup zones.





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SECURITY

Pickup zones must facilitate helicopter extraction and offer some degree of security from enemy observation and direct fire. Good pickup zones will allow helicopter extraction of a unit without exposing the unit or the aircraft to unnecessary risks.

Security is normally established around the entire perimeter of the pickup zone. Squad and fire team sectors are established for all-round security. To maintain security after the first flight(s) depart, security teams must be shifted.

To help secure the pickup zone, plan and coordinate supporting fire and position claymore mines. Position automatic weapons carefully for maximum effectiveness. Security elements must remain alert. Insure that all troops stay hidden so that the pickup zone location is not compromised.

SAFETY

The safety of your men is your responsibility. Some safety rules to observe when in or around helicopters are:

- Never walk behind a helicopter.
- Never approach a helicopter from the rear or front.
- Keep body low when approaching a helicopter.
- Keep safety belts fastened when airborne.
- Insure that weapons are clear and on safe.
- Keep radio antennas down and secured.
- Keep hand grenades secured inside a container when riding helicopters.
- Don't jump from a hovering helicopter until told to do so by a member of the crew.

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APPENDIX I
HOW TO HANDLE PRISONERS OF WAR

PW

The handling of PWs is governed by international agreement (Geneva Convention). On capture, all enemy soldiers must be handled in accordance with these agreements. Once you have captured them, their security is important. Listed below are five rules (5 S's) for handling PWs:

SEARCH PWs as soon as you capture them. Take their weapons and documents, except identification papers. Give a written receipt for any personal property and documents taken. Tag documents and personal property so that you know which PW had them. Be sure that one man guards while another searches. When searching, don't ever get between PW and the guard. While searching have the PW spread eagle against a tree or wall or on the ground in a modified pushup position with the knees on the ground.

SEGREGATE PWs into groups: officers, NCOs, privates, male civilians, females, and political indoctrinators. This keeps the leaders from promoting resistance or escape efforts. Keep groups segregated as you move them to the rear.

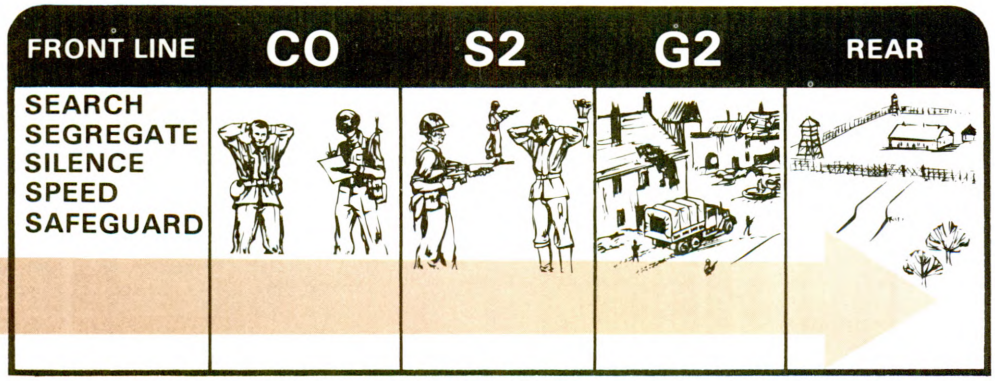
SILENCE PWs. Do not let them talk to each other. This keeps them from planning escape and from cautioning each other on security. Report anything a PW says to you or tries to say to another PW.

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SPEED PWs to the rear. Platoons turn PWs over to the company where they are assembled and moved to the rear for questioning by the S2. Tag a PW; as there is no preprinted PW or document tag, use the top of a C-ration box, scrap paper, or whatever you can devise.

SAFEGUARD PWs when you take them to the rear; make sure they arrive safely. Watch out for escape attempts. Don't let them bunch up, stretch out, or create diversions (fist fights, etc.) as this creates opportunity for escape. On the other hand, don't let anyone abuse them. Do not let anyone give them cigarettes, food, or water unless ordered to do so by someone in your chain of command.

PROCEDURE



Usually, men who capture PWs search, segregate, silence, and safeguard them until they are turned over to other men who continue to segregate, silence, and safeguard the PWs while they speed them to the rear for processing by intelligence troops. If the situation allows, squad, platoon, and company leaders may question PWs when they are first caught to gain immediate-use intelligence.

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APPENDIX J
ROAD MARCHES AND ASSEMBLY AREAS

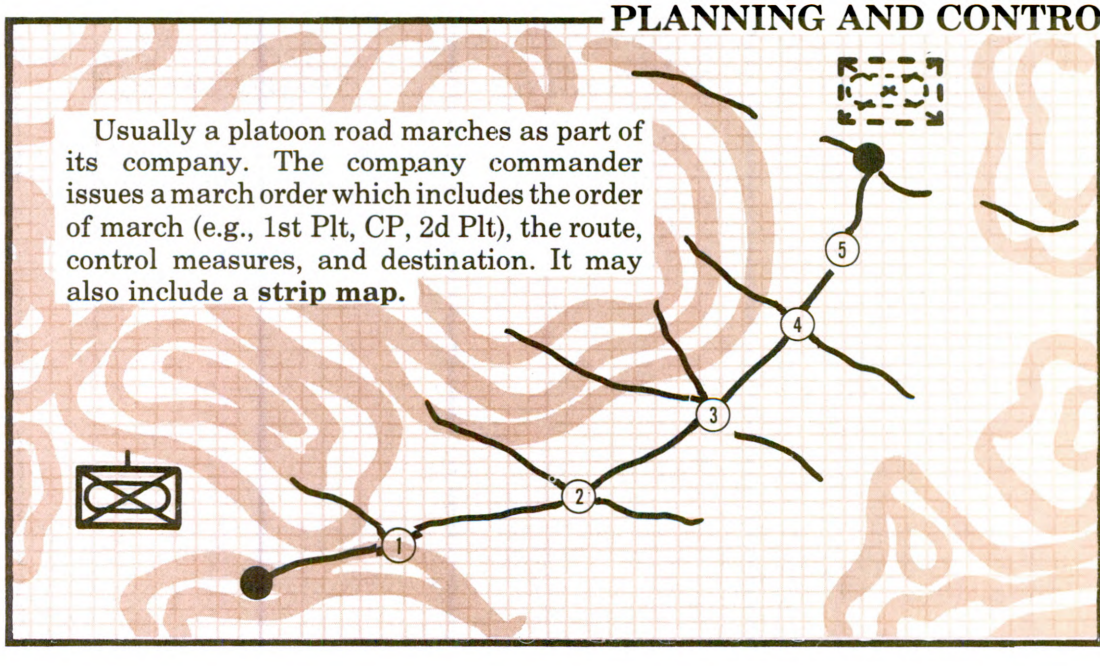
Section I
ROAD MARCHES

A road march is a type of movement when not in contact designed to get a unit from one place to another efficiently. It is normally conducted when it is necessary to move long distances in areas where there is very little chance of making contact with the enemy.

A unit conducts a road march instead of using movement techniques (chap 4) when speed and control are more important than cover and concealment. The unit then moves on the fastest available route--usually a road. Platoons conduct road marches only when told to do so--use movement techniques at all other times.

PLANNING AND CONTROL

Usually a platoon road marches as part of its company. The company commander issues a march order which includes the order of march (e.g., 1st Plt, CP, 2d Plt), the route, control measures, and destination. It may also include a **strip map.**



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On this map, your company is located in a rear assembly area and is preparing to conduct a road march to an assembly area farther forward.

CRITICAL POINTS

The company commander has identified **critical points** along the route. These are placed that can be used for reference during movement and places such as road junctions, steep grades, and bridges that might interfere with movement. At those critical points where it is possible to make a wrong turn or use a low weight class bridge, the commander may post guides to help control movement.

(SP) START POINT

(RP) RELEASE POINT

The **start point (SP)** is an easily recognizable point on the ground where the road march actually begins. The **release point (RP)** is also an easily recognizable point at which the road march ends.

You will be told what time your platoon should cross the start point. As other units will probably be planning to use the route, it is important that you cross the SP on time. Reconnoiter the route from your present position to the SP so that you will know how long it takes to get there and what problems you may encounter. Plan on leaving your present position in time to arrive at the SP just before you are supposed to cross it. Don't go too early or you may cause a traffic jam at the SP.

MARCH SPEED (how fast you move)

DISTANCE

CLOSE COLUMN

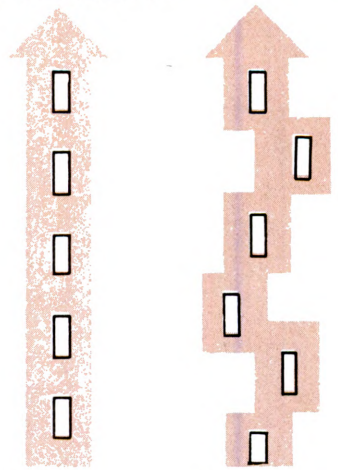
OPEN COLUMN

The march order usually specifies the **march speed** (how fast you move) and the **distance** between APCs. Rather than an exact distance between vehicles, you may be told to move in **close column. Close column** means that your APCs are only about 15-25 meters apart. It is normally used under conditions of reduced visibility (other than dust) and when moving through congested areas such as a town that has been secured by friendly forces. **Open column** is used during daylight and when dust is a problem. Vehicles are separated by 75-100 meters.

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CONDUCT OF A ROAD MARCH

MOVEMENT



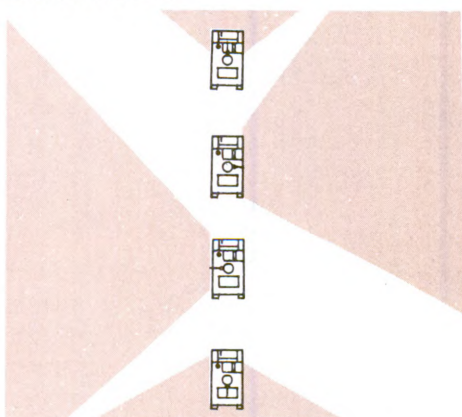
The platoon moves either in column or in staggered column depending on traffic conditions. When the route on which you will move has two-way traffic, you move in column with one carrier following another at the prescribed distance. If you know that the route will have no traffic coming from the other direction you move in staggered column with each APC on the opposite side of the road from the one in front of it, following at the prescribed distance. Staggered column gives you greater dispersion and security.

REPORTS

"RADIO SILENCE"

If you are moving as part of the company, you must report crossing the SP, each critical point, and the RP--unless you are on "radio silence."

SECURITY



During the march, maintain security by assigning sectors for each APC to observe. As in all other movement when not in contact, each carrier has an airguard for air security. The last squad is responsible for rear security. In each carrier, the squad leader and the TL/gunner observe the sector assigned by the platoon leader and orient the cal .50 machinegun in that direction. Other men in the cargo hatch are assigned sectors of observation by the squad leader so that there is 360° observation around the carrier.

As speed and control are critical, the platoon leader moves at the head of his platoon's column.

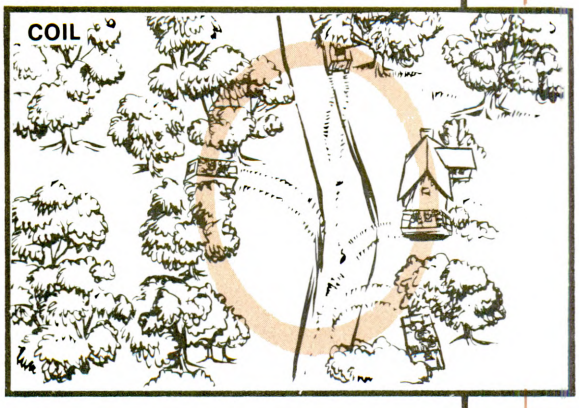
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HALTS

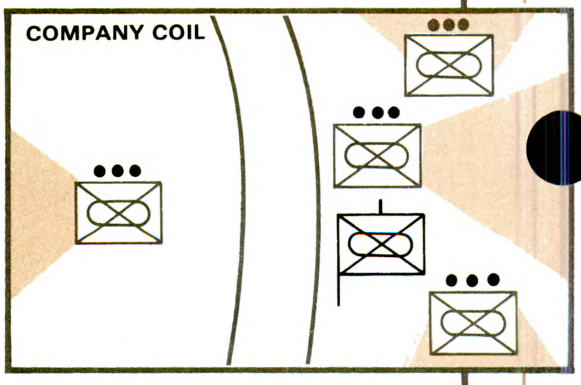
There are three types of halts that can take place during a road march.

Scheduled halts are planned for maintenance or rest. At scheduled halts, carriers pull over to the side of the road and halt, keeping the prescribed distance between vehicles. The maneuver teams dismount immediately and set up local security. The drivers and carrier teams, supervised by the TL/gunner, perform during operation maintenance checks.

Unscheduled halts are caused by unforseen events such as encountering an obstacle. First dismount maneuver teams to establish security. If you can get off the road, move into a perimeter-type position called **coil.**



When you are moving as part of the company or team, you don't coil your platoon but are given a portion of the company coil.



If you cannot get off the road, have your carriers turn at an angle, facing opposite sides of the road. This is called a **herringbone.**



Disabled vehicle halts occur when one of your APCs break down and the following carriers in your column cannot pass around it on the road. you must not allow the disabled carrier to block the road--move it off the road. In most cases you will not wait for it to be repaired. Leave the driver and TL/gunner to secure it and continue moving. Report its location to the company commander and tell the TL/gunner what to do when his carrier is repaired.

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Section II
ASSEMBLY AREAS

There are two types of assembly areas. One type is used during a withdrawal (chap 6) to regain control of a unit and account for troops and equipment after disengaging from the enemy. The other type assembly area is one located to the rear of friendly units (or in friendly areas) where a unit not in contact prepares for its next operation. This type assembly area is discussed in this appendix.

Platoons usually occupy assembly areas as part of their company. Although an assembly area is not a defense position, you must be ready to detect and defeat enemy attacks. Establish local security and prepare fighting positions. Camouflage is particularly important, especially from air observation.

Once the position is prepared, service support operations are performed, including resupply, maintenance, feeding and rest. How these things are done is discussed in Chapter 9, Combat Service Support.

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APPENDIX K
HEALTH, HYGIENE, AND CARE OF CASUALTIES

Section I
HEALTH AND HYGIENE

Casualties due to sickness and disease far outnumber battle casualties in war. Enforcing good standards of field sanitation and hygiene is the single best way to avoid sickness and disease in the field.

Platoon and squad leaders have a major responsibility in field sanitation and hygiene. They must strictly enforce all programs dealing with the health and well-being of their men.

DISEASE PREVENTION

Five types of disease impact on the health of your men. Preventive measures are simple and effective:

Types of Disease	Preventive Measures
Respiratory	Personal hygiene, immunizations.
Intestinal	Personal hygiene, consumption of only authorized food and beverages.
Insect borne	Personal hygiene, field sanitation, individual and chemical measures.
Venereal	Personal hygiene, education, avoidance, prophylaxis, treatment.
Miscellaneous (communicable) diseases, athlete's foot, tetanus, etc.)	Personal hygiene, immunizations.

PERSONAL HYGIENE

Personal hygiene is the best preventive--there is no substitute for keeping clean. The most important role of the leader in this is to SET THE EXAMPLE. He must train every man in field hygiene, enforce proper standards and SOPs, and insure the availability and use of proper latrines and washing points.

KEEP CLEAN. Situation permitting, your men should bathe daily. At least, feet, underarms, etc., should be washed.

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HAIR SHOULD BE SHORT	Hair should be kept trimmed and clean. If necessary, hand clippers should be requested so hair can be cut.
SHAVE DAILY	Unless prevented by the situation or a shortage of water, soldiers should shave daily.
CLOTHING AND BEDDING MUST BE CLEAN.	Dirty or insect-infested clothing and bedding can defeat any effort directed at keeping the body clean. Clothing, to include socks, should be exchanged/washed frequently. Bedding should be washed or aired out in direct sunlight.
FOOT CARE	Give special attention to foot care. Boots must be fitted properly and broken in. Socks must be the proper size and changed daily. Feet should be washed with soap and water daily. Feet should be powdered with issue foot powder as socks are changed. Hold regular foot inspections in periods of extended foot movement and especially in periods of rainy or cold weather. When possible, the medic attached to the platoon should supervise and help treat blisters and other minor problems.

SANITATION

You must supervise and enforce strict sanitation standards. Use your aidman. Each platoon usually has a medical aidman attached to it by the company commander. The aidman is qualified to advise and help with health and hygiene measures. Have him inspect your men regularly, and recommend any necessary action.

FOOD/WATER	Consume food and water only from authorized sources. When separated from an approved water source, treat with purification tablets or by boiling.

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LATRINES AND CAT HOLES	Latrines or cat holes must be used at all times. They must be filled in and, where applicable, marked. Have wash points adjacent to latrines, and have soldiers wash their hands after using the latrine.
MESS EQUIPMENT	Mess equipment must be kept clean.
REFUSE	Refuse must be buried. Visible refuse is a major camouflage violation, and it draws disease-spreading flies and insects. Refuse pits should be dug on static positions deep enough (at least 4 feet) so they will not be rooted up by animals after they are closed.
POLICING	In conjunction with the use of refuse pits, keep defense positions, assembly areas, etc., well policed. This reduces the number of insects and disease-carrying rodents that are attracted by refuse.
PERSONAL ITEMS	Avoid use of communal towels, shaving items, etc.

PREVENT HEAT AND COLD INJURIES

Casualties caused by extreme heat or cold can be reduced or eliminated by preventive measures. The best way to prevent environmental casualties is to educate your men during training on what they can do to avoid being disabled by heat or cold. Proper clothing, a good diet, and an adequate water intake are basic preventive measures.

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Section II
CARE OF CASUALTIES

Rapid treatment and care of battle casualties serve two important purposes--

A soldier's morale is higher if he knows that the men in his unit are well trained to care for him if he is wounded.

The quicker a casualty is cared for, the more likely he is to recover and return to duty.

Each man in your unit must know how to administer first aid. Before an operation, know how your men are going to treat and evacuate casualties once it begins.

WHO TREATS CASUALTIES

AIDMAN. Each platoon has a medical aidman attached. He will give first aid to casualties and--

Return to duty those who need no further treatment.

Arrange for evacuation of those that do need further treatment. He may tell walking wounded how to get to the company aid station, or he may ask you to call for the company medical carrier.

SOLDIERS. *The aidmen will not always be able to attend to each casualty, so, usually the first treatment that a casualty gets is given by another soldier. If your unit uses the buddy system (where two soldiers habitually fight together), you can make it SOP that when a man is wounded, his buddy administers first aid and then continues with the mission.*

EVACUATION OF CASUALTIES

For a deliberate attack plan, the company commander will designate a ***company casualty collection point.*** So that all men in your platoon

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know where it is, include its location in your platoon/squad order.

The platoon aidman is in charge of evacuation. He treats casualties as necessary, arranges for evacuation, and keeps a record of those evacuated. Casualties are taken, or walk if they can, to the company collection point. They are then evacuated to the battalion aid station in the APC ambulance attached to the company.

EVACUATION WHEN MOVING TOWARD THE ENEMY.

Mounted. If a man in an APC becomes a casualty, he must stay in the APC until an ambulance can get to it and evacuate him. This should be done quickly because delay can allow the casualty to die from wounds or shock. Keeping a casualty on board for long has a detrimental effect on the morale of the other squad members.

Dismounted. When you are dismounted, closing with the enemy, and take casualties, the medic or other soldiers give immediate first aid. If a casualty can still fight, he continues with the mission. If he cannot fight, but can walk, he walks to the collection point. If he cannot walk, he is treated, his location is reported to the squad leader, and the squad continues with the mission. *When the objective is secured, you must send two or three men back to take the casualties to the collection point.* If the carrier ambulance is available, then these men help load the casualties.

EVACUATION WHEN MOVING AWAY FROM THE ENEMY.

When you are moving away from the enemy, ***TAKE YOUR CASUALTIES WITH YOU,*** and transfer them to the company's carrier ambulance as soon as you can.

WEAPONS AND PERSONAL EFFECTS OF CASUALTIES

Walking wounded carry their weapons until they get to the company collection point. If they are to be evacuated out of the company, their weapons are collected by the company aidman before they leave. Weapons of casualties that cannot walk are collected and given to their squad leaders before they are evacuated from the platoon.

Personal effects found on a casualty are evacuated with him.

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FIRST AID

Each man in your unit must know how to administer the four basic lifesaving first aid measures (**FM 21-11**):

1. **Open the airway and restore breathing and heartbeat.**
2. **Stop the bleeding.**
3. **Prevent shock.**
4. **Dress and bandage the wound to avoid infection.**

DOs AND DON'Ts OF FIRST AID

DO

Act promptly but calmly. (A person who "loses his head" is of little value to a wounded soldier.)

Reassure the wounded soldier and at the same time quickly and gently examine him to see if you need to OPEN THE AIRWAY AND RESTORE BREATHING AND HEARTBEAT and STOP THE BLEEDING. If necessary, administer these measures instantly. (Lack of air intake leads to death in a few minutes.)

Reexamine the wounded man immediately in a careful, gentle, organized (head-to-toe, front and back) manner to determine the extent and type of injuries; then, as required, PREVENT SHOCK and DRESS AND BANDAGE THE WOUND(S) TO AVOID INFECTION. (If shock is not prevented or corrected, the soldier may die even though the injury causing the shock would not otherwise be fatal. Healing of a wound and recovery of the soldier depend to a great extent how well the wound was first protected from contamination.)

DON'T

Position a soldier on his back if he is unconscious or has a face or neck wound.

Move a soldier who has a fracture until is has been properly splinted unless it is absolutely necessary, such as moving him from close enemy action, a toxic (carbon monoxide) environment, or a burning building.

Remove clothing from an injured soldier by pulling or tearing it off.

Touch or try to clean a dirty wound, including burns.

Remove dressings and bandages once they have been placed over a wound.

Loosen a tourniquet once it has been applied.

Give fluids by mouth to a soldier who is unconscious, nauseated, or vomiting or who has an abdominal or neck wound.

Permit the head of a soldier with a head injury to be lower than his body.

Try to push protruding intestines or brain issue back in a wound.

Put any medication on a burn.

Administer first aid measures which are unnecessary or beyond your capabilities.

Fail to replenish your first aid case with items which you have used from it. When a soldier administers first aid to another, he must use the wounded man's first aid items first--he may need his own later.

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APPENDIX L
DISMOUNTING UNDER FIRE

When the infantry dismounts under fire, it must do so rapidly. Each squad must be able to react immediately with little or no instruction from the squad leader. Ideally, his only command is **DISMOUNT or DISMOUNT RIGHT/LEFT.** When the squad hears that command, each man must know exactly what he must do from the moment the carrier stops until the maneuver team begins moving on foot.

DISMOUNT SOP

Each man must know if he is to be on the carrier team or maneuver team. The size and composition of the maneuver and carrier teams and the weapons to be employed with each team normally will be an SOP or preplanned item; for example, a platoon SOP could be:

1st Squad	*Carrier team* -- driver, team leader/gunner, and Dragon gunner.
	Maneuver team **--** rest of squad, bringing one Dragon/one extra Dragon round.
2d Squad	*Carrier team* -- driver, team leader/gunner.
	Maneuver team -- rest of squad with machine-gun.
3d Squad	*Carrier team* -- driver, team leader/gunner.
	Maneuver team -- rest of squad, bring one Dragon/one extra Dragon round.

This SOP is modified as required by conditions. For example, if the platoon dismounted in terrain which did not allow Dragon fire, the platoon leader's command could be, **DISMOUNT, NO DRAGONS, 3d SQUAD CARRY FLASH.**

- The 1st Squad Leader's command would be, **DISMOUNT, EVANS LEAVE THE DRAGON, COME WITH ME.**
- The 3d Squad Leader's command would be **DISMOUNT, JONES CARRY FLASH--NO DRAGON.**

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DISMOUNT DRILLS

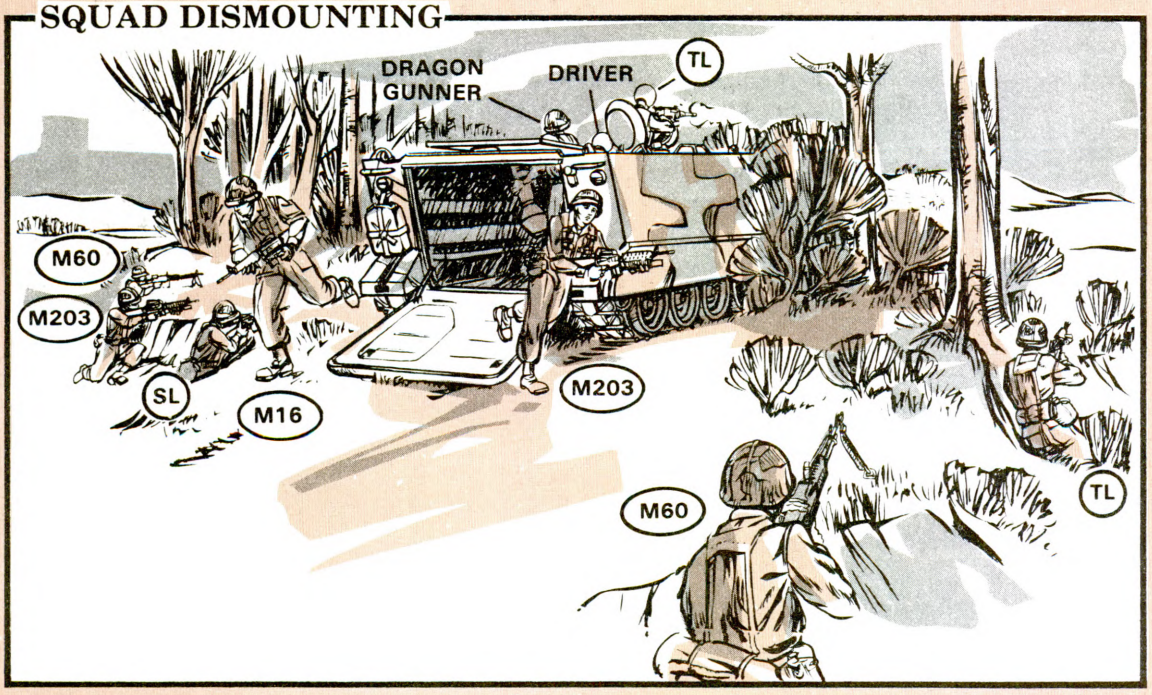
Your men will function smoothly only if you have established and practiced squad dismount drills. There are two dismount drills that cover almost all situations.

- Dismount on both sides. The command is **DISMOUNT.** Men on the right side of the carrier dismount to the right; men on the left side dismount to the left.

DISMOUNT

In this example, enemy fire is coming from a position straight ahead of the carrier and the squad leader was told to dismount and destroy the enemy. When the driver heard the command DISMOUNT, he automatically moved into a covered and concealed position, faced the carrier toward the enemy, and dropped the ramp.

SQUAD DISMOUNTING



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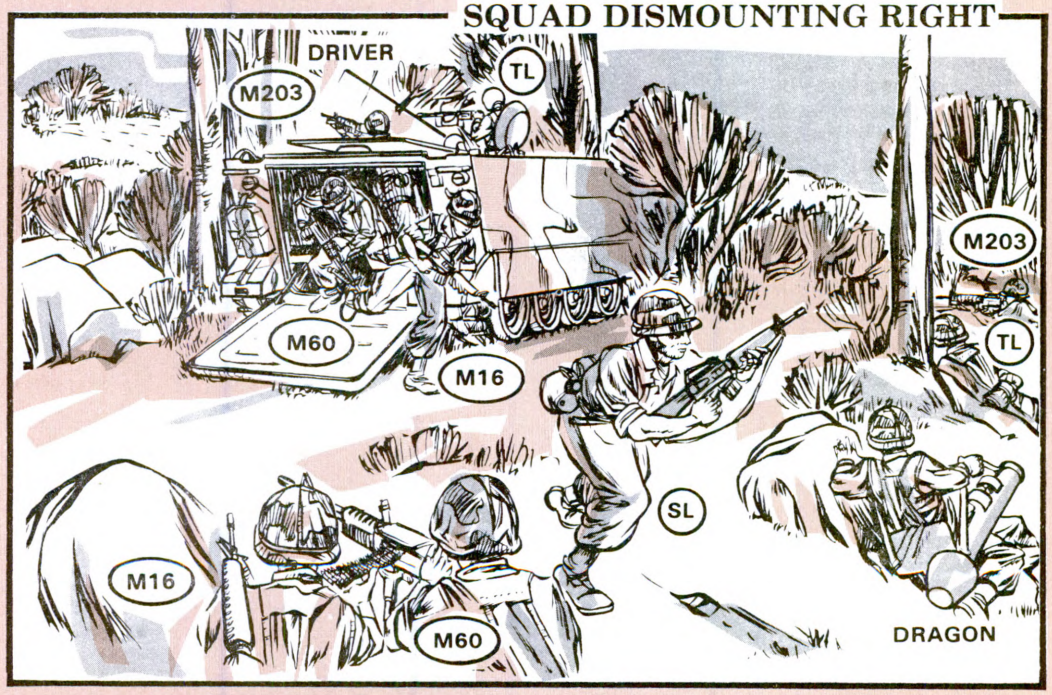
The carrier team consists of the TL/gunner, driver, and a Dragon gunner. The maneuver team has seven men, including the squad leader. As they dismount, the men on each side move to the flanks of the carrier but don't go forward. This is so they will be able to see the squad leader.

- Dismount right (left). The command is **DISMOUNT RIGHT (LEFT).** As the maneuver team comes out of the carrier, they all go to the same side.

DISMOUNT RIGHT

In this situation, enemy fire is directed at the carrier from the left front. The driver was able to quickly move into a covered position but was unable to face the carrier toward the enemy position. Because the enemy fire on the left side of the carrier is heavy and there is little cover to that flank, the squad leader wants the entire maneuver team to get off the carrier to the right side. The carrier team consists of the TL/gunner, driver, and a grenadier. The maneuver team has six men, an attached M60, and an attached Dragon.

SQUAD DISMOUNTING RIGHT



Enemy fire from the other side could have forced the squad to dismount left.

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DISMOUNT TECHNIQUES

- The men firing from the cargo hatch should be the last one to get off the carrier. Their fire covers the inside men as they dismount.

- Only the maneuver team dismounts. Men who have been designated as part of the carrier team remain mounted and, depending on the situation, prepare to, or actually shoot suppressive fire on the enemy to cover the dismounting team.

- The APC draws enemy fire, so as soon as you get off, move the maneuver team away from it. Squad leaders can give a very brief order to their men or use arm-and-hand signals to get the team moving.

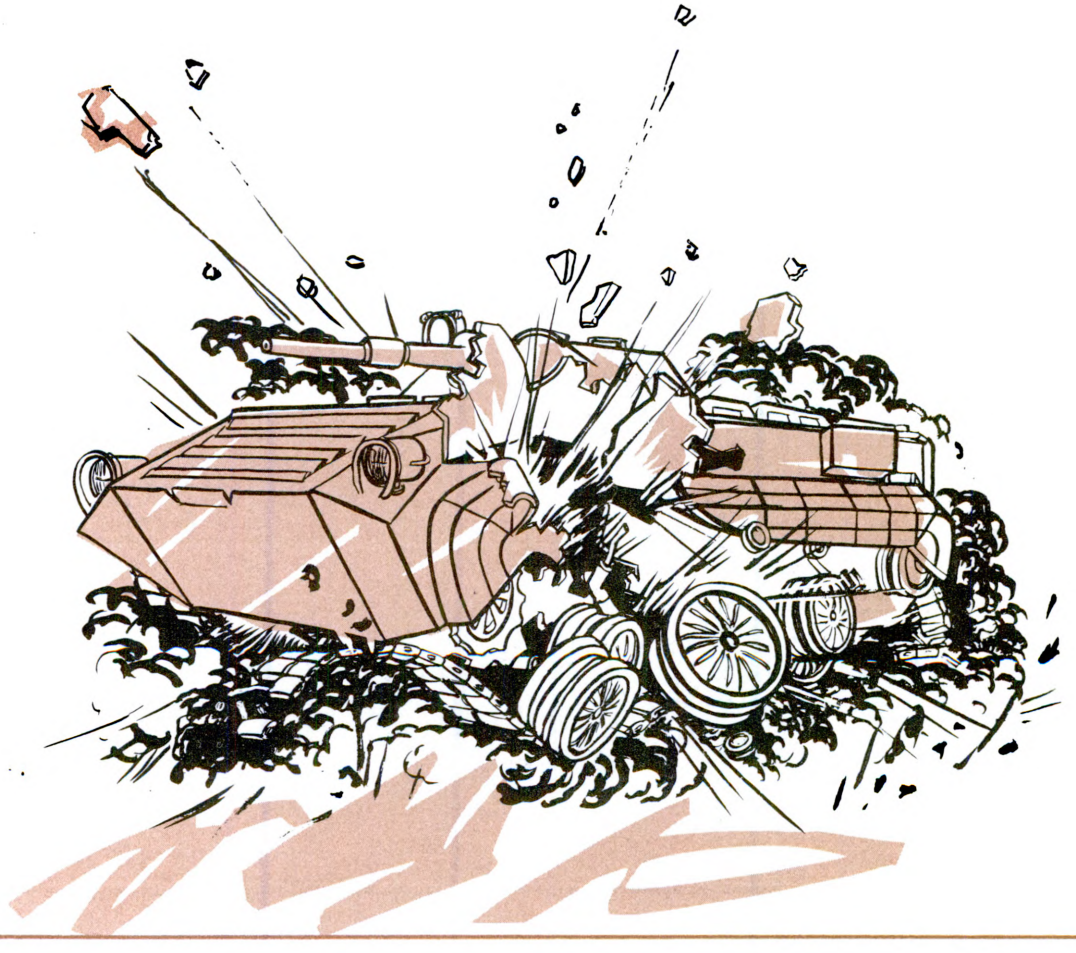
- In many cases, carrier teams are controlled by the platoon sergeant as soon as the maneuver teams begin moving. However, it may take a few minutes for this to happen, so before they dismount, the squad leader must tell the TL/gunner what the maneuver team is going to do and what the carrier team should do. If you have trained well, all TL/gunners know how their squads operate and few instructions, if any, are necessary.

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APPENDIX M
OBSTACLES

Section I
STANDARD MINES

Minefields assist materially in the conduct of security, defense, retrograde and offensive operations by reducing the mobility of the enemy. Mines supplement natural obstacles and enhance the obstacle value of terrain and other artificial obstacles. Until neutralized, installed mines are a hazard to both enemy and friendly troops. Minefields supplement manned weapons and, after installation, add to the user's combat power without additional troops.



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M14 BLAST ANTIPERSONNEL MINE



Wt ..... 3 1/3 oz.
Explosive ..1 oz. TETRYL
Fuze ..... integral (with Belleville Spring)
Functioning 20 to 35 lb.
Penetrate Boot & Foot



Unscrew shipping plug from bottom of mine. Turn pressure plate to ARMED position with arming tool.



Remove safety clip and check for malfunctioning.



Replace safety clip.



Screw detonator into detonator well.



Bury mine and remove safety clip.

TO BURY: Pressure plate should be slightly above ground level.
TO DISARM: Insert safety clip and remove detonator.
CAUTION: Repeated turning of arming dial may cause excessive wear.

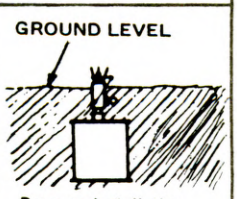
M16A1 BOUNDING ANTIPERSONNEL MINES



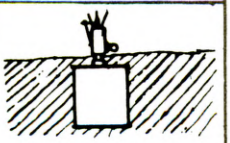
Wt ..... 8.25 lb.
Projectiles ..... Steel
Fuze ..... M605 (Combination)
Functioning:
Pressure ... 8 to 20 lbs
Pull ..... 3 to 10 lbs
Bounding Ht .6–1.2m
Casualty radius..... 30m



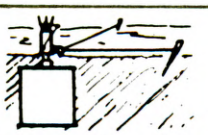
Remove shipping plug and screw in fuze.



Pressure installation



Tripwire installation



Attach tripwires — first to anchor, then to pull ring.



Remove locking safety pin first. The interlocking pins should fall free. Then remove positive safety.

TO DISARM: Reverse arming procedure.

M25 BLAST ANTIPERSONNEL MINE (ELSIE)



Wt ..... 2 3/4 oz.
Explosive ... 1/3 oz. shape charge
Fuze .....integral (w/ball release)
Functioning.. 14 to 26 lbs
Penetrate Boot & Foot



Push mine into ground. Keep dust cap in place. If ground is hard, dig hole with bayonet.



Remove dust cap.



Insert charge.



Remove safety clip.

TO DISARM: Reverse arming procedure.

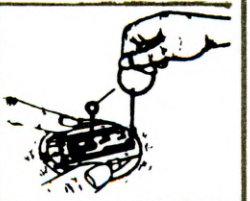
M26 ANTIPERSONNEL MINE



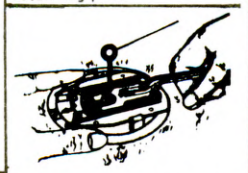
Wt .....2.2 LBS
Projectiles ..... Pellets
Fuze ..... integral
Functioning:
Pressure ....14–28 lbs
Pull ..... 4–8 lbs
Bounding Ht 3m
Casualty Radius 17m



Remove arming handle. (If tripwire is to be used install trip-lever; attach slack wire to lever; and) place mine in ground flush with top of ground.



Remove arming latch retaining pin.



Attach arming handle to lugs on arming latch, rotate the cover clockwise until it comes to a positive stop (the arrow will point to the red letter "A" armed).

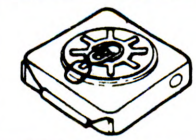
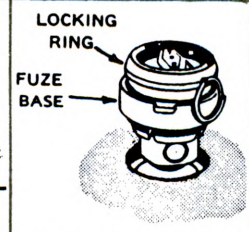
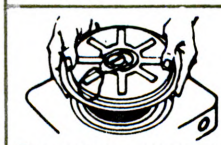
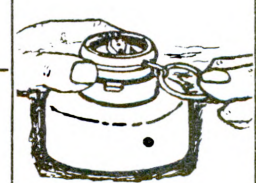
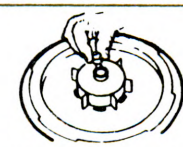
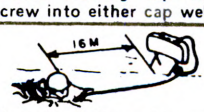
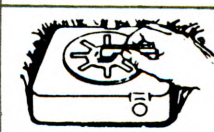
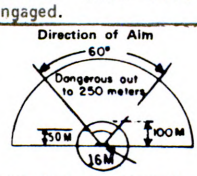
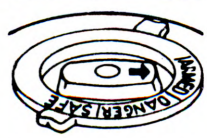
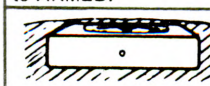


Remove arming latch by pulling straight out with the arming handle.

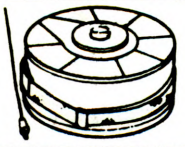
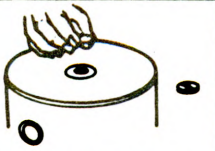
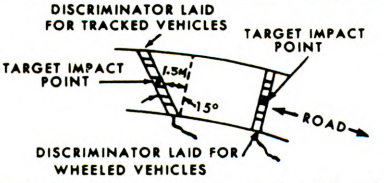
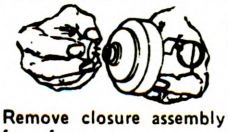
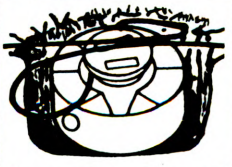
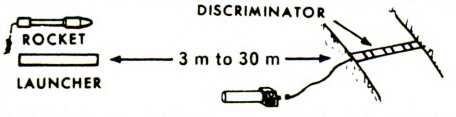
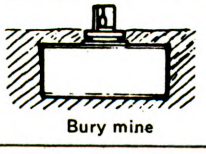
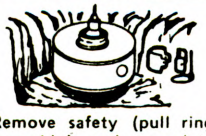
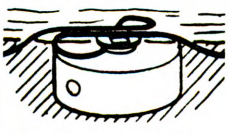
TO DISARM: Reverse arming procedure.

NOTE: ALL MINES MUST BE COMPLETELY CAMOUFLAGED TO BE EFFECTIVE.

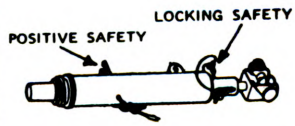
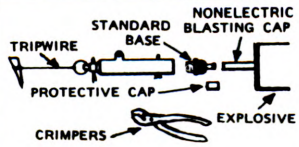
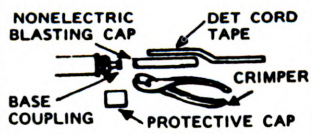
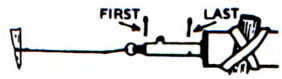
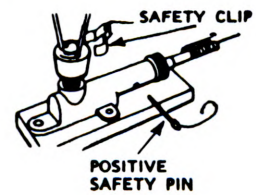
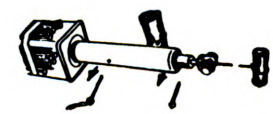
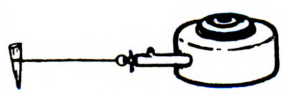
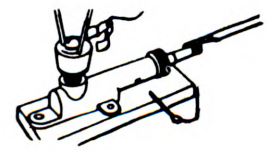
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M18A1 FRAGMENTATION ANTIPERSONNEL MINE	M15 HEAVY ANTITANK MINES	M15 ANTITANK MINE USED WITH M608 FUZE	M19 PLASTIC HEAVY ANTITANK MINE
			
Wt ..... 3.5 lbs. Explosive ..... 1.5 lb. C4 Projectiles ..... 700 (steel balls) Equipment: One electric cap 30m firing wire per mine. One electric firing device per mine. One Tester per 6 mines.	Wt ..... 30 lbs. Explosive ..... 22 lbs. Fuze ..... M603 Secondary fuze wells ... 2 Functioning: 300 to 400 lbs.	Functioning ....200-350 lbs for 250-450 milliseconds. Resistant to blast type countermeasures.	Wt ..... 28 lbs. Explosive ..... 21 lbs. Fuze .....M606 integral (with pressure plate) Secondary fuze wells ... 2 Functioning: 350 to 500 lbs.
			
TEST CIRCUIT: Mate firing device, circuit tester and blasting cap. Depress handle. Light should show in window. Separate test components.	Remove plug and inspect fuze well.	Remove plug and inspect fuze well. Insure fuze is in SAFE position. Thread fuze into mine.....HAND TIGHT Hold fuze to prevent rotating, turn locking ring down until it locks against pressure plate.	Remove pressure plate-fuze.
AIMING: IN AIMING THE M18A1, WHEN USING THE SLIT TYPE PEEP SIGHT, AIM THE MINE AT AN INDIVIDUAL'S HEAD WHEN STANDING 45M FROM THE MINE. WHEN USING THE KNIFE EDGE SIGHT, AIM THE MINE AT AN INDIVIDUAL'S FEET WHEN STANDING 50M FROM THE MINE.			
	Inspect fuze and remove safety.		Remove shipping plug; check position of striker (offset). Remove safety fork, then turn dial to ARMED position. Check position of striker (center). Turn to SAFE and replace safety fork.
Remove shipping plug-priming adapter, insert blasting cap and screw into either cap well.			
	Insert fuze		Screw threaded detonator into detonator well.
Unroll firing wire and connect directly to firing device with safety engaged.		Place mine in hole and remove pull pin from fuze.	
	Replace plug with dial in safe position.		Place mine in hole, remove safety fork; and turn dial to ARMED.
FIRING POSITION: A minimum of 16 meters from rear of mine to fox hole. Friendly troops at side and rear should be under cover at a minimum of 100 meters.			
TO FIRE: Disengage safety bail and depress handle.	Turn dial to ARMED.	Turn dial from SAFE to ARMED.	Complete camouflage
TO DISARM: Reverse arming procedure.	TO BURY: Put mine in hole with pressure plate at or slightly above ground level. TO DISARM: Reverse arming procedure.	TO DISARM: Reverse procedure except DO NOT replace pull pin.	TO BURY: Put mine in hole with pressure plate at or slightly above ground level. TO DISARM: Reverse arming procedure.

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M21 METALLIC (KILLER) ANTITANK MINE	M21 ANTITANK MINE USED WITH M612 FUZE	M24 OFF-ROUTE ANTITANK MINE
		INSTALLING AND ARMING 
Wt ..... 18 lbs. Explosive ..... 10.5 lbs. Fuze ..... M607 Functioning ..... 290 lbs. (Pressure on pressure ring or 20° deflection of tilt rod)	Has two 2.7m pneumatic leads, safety latch and arming lever.	 Remove above items from accessories pouch. Insert batteries (issued separately) in firing device.
 Remove closing plug, insert M120 booster in bottom, and replace closing plug.	 Remove closing plug, insert M120 booster.	 Unreel discriminator starting at far side of road (perpendicular to edge for wheeled vehicles; about 15° from perpendicular for tracked vehicles).
 Remove closure assembly from fuze.	 Remove shipping plug from mine. Screw in fuze.	 Attach discriminator wire to DETECTOR of firing device (toggle switch on SAFE). Stand on two brown marks on discriminator nearest firing device. If lamp lights, circuit is good; otherwise, discard system.
 Remove shipping plug from mine and screw in fuze, then screw in tilt rod extension.	 Bury mine. Cross and extend hoses.	 Disconnect discriminator wire from firing device. Remove launcher from dispenser pouch and place in position. Remove packing blocks, push rocket forward to safety band, and remove band. Depress ejection pin and push rocket back into launcher until contact ring is exposed at base. Grounding clip must be connected. Remove tagged shorting clip and push rocket back into launcher. Tape plastic covers over ends of launcher.
 Bury mine	 Lift safety latch and turn arming lever to ARMED. Recross hoses.	
 Remove safety (pull ring assembly) and complete camouflage.	 Complete camouflage.	 Position launcher on bipod assembly or mound of earth. Mount sighting assembly and sight along discriminator to target impact point about 1m above road (soldier's belt buckle.) To aim, move launcher, not sight. Fill poucher with dirt, lay over launcher, recheck sight, remove sight, re-connect discriminator wire to firing device (light out), connect rocket cable to firing device, and push toggle switch to ARM. The system is now armed and will fire when pressure is applied to the discriminator. See TM 9–1345–200.
For pressure type mine bury with fuze cap flush with ground surface. Tilt Rod-mines should be seated firmly in snug-fitting hole. Most effective in tall brush or grass. TO DISARM: Reverse arming procedure.	Timer provides a 30 ± 5 minute safe separation period. Both leads must be depressed for initiation. TO DISARM: Reverse arming procedure.	

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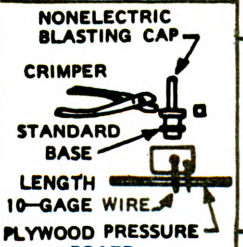
M1 PULL FIRING DEVICE	M1A1 PRESSURE FIRING DEVICE	M3 PULL-RELEASE FIRING DEVICE
 INITIATING ACTION: 3 to 5 lb pull on tripwire.	 Initiating pressure: 10 lbs or more.	
 Remove protective cap from standard base and crimp on nonelectric blasting cap. Attach firing device assembly to charge. Attach anchored tripwire.	  Remove protective cap from base and crimp on nonelectric blasting cap. Assemble det cord, nonelectric blasting cap, and firing device.	 Remove protective cap and crimp on a nonelectric blasting cap. Attach firing device assembly to anchored charge (must be firm enough to withstand pull of at least 6-10 lbs. pull on tripwire). Put free end of anchored tripwire in hole in winch with knurled knob, draw up tripwire until locking safety is pulled into wide part of safety pin hole.
 TO ARM: Remove locking safety pin first, and positive safety pin last.		
 TO DISARM: Insert nail, length of wire or original safety pin in positive safety pin hole first. Then insert similar pin in locking safety pin hole. Cut tripwire, and separate firing device and expolsive. Unscrew standard base.	 TO ARM: Remove safety clip. Then positive safety pin.	 TO ARM: With cord, remove small cotter pin from locking safety pin, and withdraw locking safety pin. If it does not remove easily, adjust winch winding. With cord, pull out positive safety pin.
 The M1 pull firing device can be used as an antihandling device on the M15 or M19 AT mines. The arming procedures are the same as above. The device is employed in the side fuze well and a tripwire attached from the M1 to a stake secured underground near the mine.	 TO DISARM: Insert wire, nail, original pin in positive safety hole. Replace safety clip, if available. Unscrew base assembly from firing device.	TO DISARM: THE M3 IS DANGEROUS TO DISARM. IT SHOULD BE BLOWN IN PLACE. NOTE: If the device must be disarmed proceed as follows: Insert length of wire, nail or original pin in positive safety pin hole first. Then insert length of wire, nail or original locking pin in locking pin hole. Disassemble tripwire, firing device and explosive.

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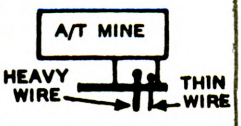
M5 PRESSURE-RELEASE FIRING DEVICE



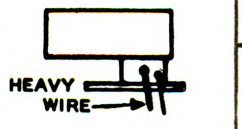
INITIATING ACTION: Lifting 1.59cm or removing restraining weight (5lb or more).



Insert length of 10-gage wire in interceptor hole and holding release plate down, remove safety pin. Replace safety pin with length of No. 18 wire. Assemble cap, firing device and mine.

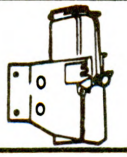


TO ARM: Remove thin wire (locking safety) and then heavy wire (positive safety) from interceptor hole. FOLLOW ARMING PROCEDURE CAREFULLY.



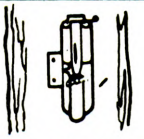
TO DISARM: Insert length of heavy gage wire in interceptor hole. Bend wire to prevent dropping out. Proceed carefully, as the slightest disturbance of restraining weight may detonate mine. Disassemble firing device and mine.

M49A1 TRIP FLARE



Burning period .... 55 to 70 sec
Illumination radius 300m

Initiated by taut or loose tripwire.



Attach flare to post, tree, etc.



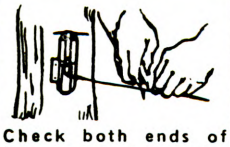
Attach tripwire to anchor, then to trigger. Pull trigger to vertical position and secure.



TO ARM: Remove safety clip.



TO DISARM: Insert safety pin.



Check both ends of tripwire and cut near trigger.

WARNING: Never look directly at burning flare. Note: For loose tripwire initiation, attach tripwire to eye of safety pin.

HASTY PROTECTIVE MINING

1. Hasty protective minefields are generally laid by small unit commanders at outposts, work sites, bivouac areas, or ambush sites. They may also supplement manned weapons, prevent tactical surprise, or give early warning of enemy advance.
2. Mines should be readily detectable and removable and be sited across likely avenues of approach within range of organic weapons and visual observation.
3. Depending on the situation, the field should be marked by signs or fences or have guards to warn friendly troops.
4. The hasty protective minefield should be recorded on DA Form 1355-1 (page 8). If not available a form should be improvised. The unit that installs the field should warn adjacent units if possible, and inform higher headquarters. This unit must remove the field before leaving the area or transfer the responsibility to the relieving unit commander.

RULES FOR A STANDARD PATTERN MINEFIELD

TRIPWIRES:

1. No tripwires in the IOE.
2. Tripwires employed on the enemy side of the strip only.
3. No more than two tripwires per cluster.
4. No more than one tripwire mine per cluster.
5. Tripwires no closer than 2 meters from any safety lane.
6. Tripwires no closer than every third cluster.

CLUSTER COMPOSITION:

1. No more than 5 mines per cluster.
2. No more than 1 AT mine per cluster.
3. First cluster always on enemy side of strip.

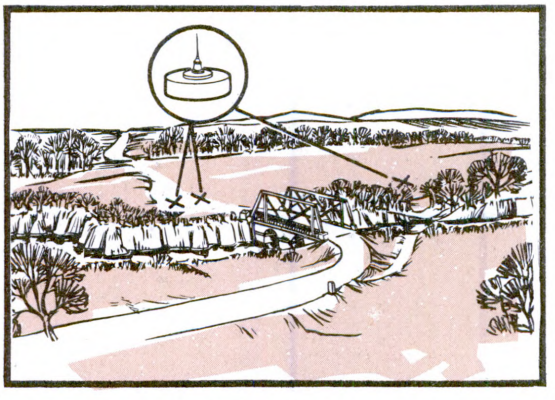
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Section II
HASTY PROTECTIVE MINING

Hasty protective minefields are prepared by a unit for its own close-in protection. They are usually taken up when the unit moves. A mechanized infantry platoon can install hasty protective minefields, but only with permission from its company commander.

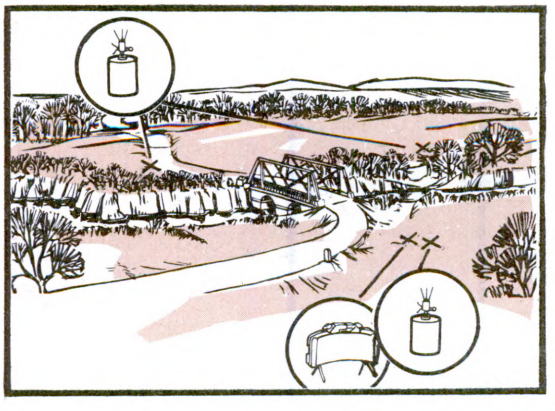
Hasty protective mining is a routine task for a platoon or squad. The following scenario describes how this is done. Although this is an example of a platoon, a squad follows the same procedure.

Your platoon has moved into a battle position and is preparing to defend. Hasty protective minefields are needed to improve the position. In your basic load you have M31 antitank mines, M16A1 antitank mines with tripwires, and M18A1 mines (Claymores).



After requesting and receiving permission to put in the mines, you must reconnoiter to determine exactly where they should go.

You and your squad leaders reconnoiter and find a need to block enemy tanks at two points--the bridge and the ford, using antitank mines.



You decide that antipersonnel mines are needed to protect the antitank mines and to cover the likely avenues of approach for enemy infantry. AP mines are also good for the open area in front of your platoon.

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As you reconnoiter, consider camouflaging the mines. Bury the M21 antitank mines with only the tilt rod exposed. This rod can be camouflaged with bursh or tall grass.

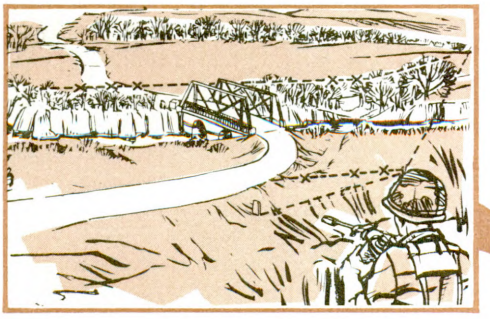


The M16A1 antipersonnel mines can be buried and the tripwires camouflaged with grass or leaves.



The Claymores and firing wire should be camouflaged using grass or leaves and buried when possible.





NOTES:

Use only metallic mines in protective minefields. If the mines cannot be found when the field is removed by hand, use a metallic mine detector (AN/PSS-11) to help find the lost mines.

Do not use boobytraps in protective minefields as they will seriously delay removal of the minefield.

Insure that the minefield can be kept under observation by your troops at all times. Continuous observation can keep the enemy from boobytrapping them.

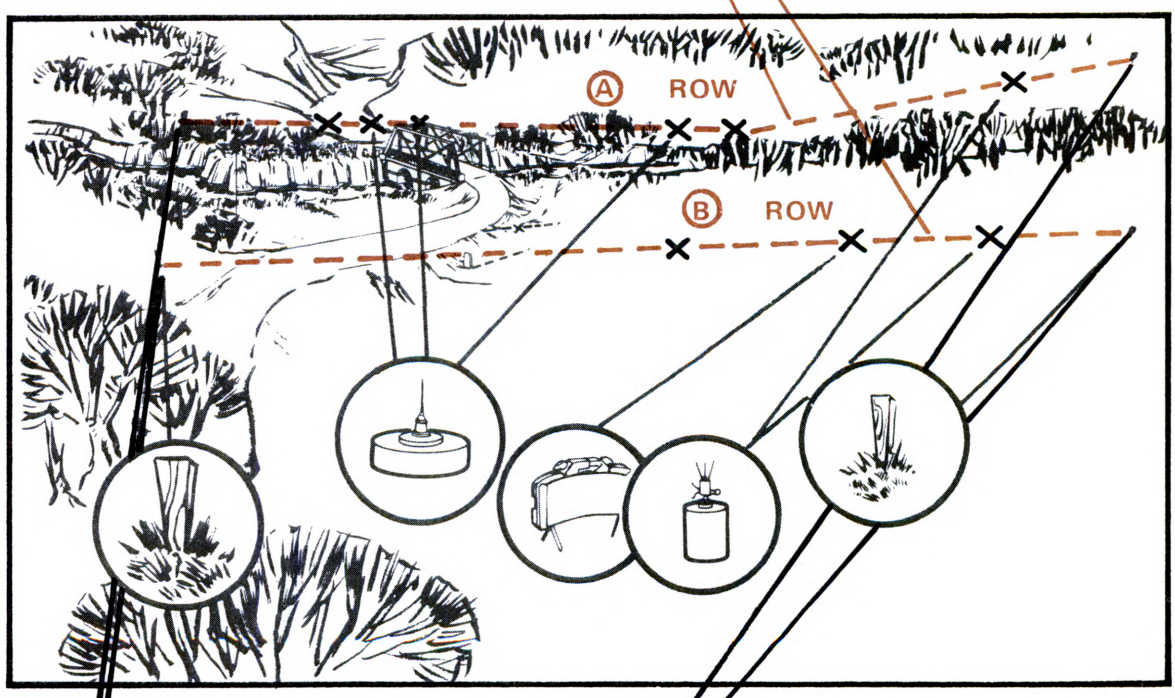
When you decide exactly where you will lay the mines, and are ready to begin, inform your commander. This is called an **initiation report.**

Now have your men place the mines at the locations you choose. **DO NOT ARM OR ATTACH TRIPWIRES TO THE MINES AT THIS TIME.**

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While they are placing the mines, find an easily identifiable reference point in front of your position. The concrete post to your front is an ideal reference point; you begin recording the field.

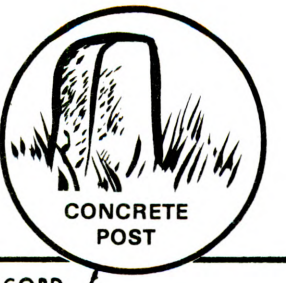
At the reference point, mentally visualize your field, running in rows, parallel to your position. This will make the recording simpler and will later make retrieval quicker and safer. By STANO/STANAG agreements, the row closest to the enemy will be designated (A) while succeeding rows will be B, C, etc. For this hasty protective minefield, you decide that two rows will be enough.



The ends of a row are indicated by two markers. These markers are labeled with the letter of the row and the number 1 for one end of the row and 2 for the other end of the row. The marker could be a wooden stake, steel picket, etc.

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From the concrete post, measure the magnetic azimuth in degrees and pace the distance to a point arbitrarily selected between 15 and 25 paces to the right of the first mine. This point will be called B-1 and will mark the beginning of the second row. Place a marker at B-1 and record the azimuth and distance on DA Form 1355-1-R.



HASTY PROTECTIVE MINEFIELD RECORD
(FM 20-32 AND TC 20-32-1)

INSTRUCTIONS

1 DESIGNATE AN EASILY IDENTIFIABLE REFERENCE POINT ON THE GROUND (A TREE A STUMP A STAKE OR THE LIKE) ORIENT THE FORM (THE BLANK FORM ON THE REVERSE) BY TYING IN THE CENTER POINT OF CIRCLES TO THE DESIGNATED REFERENCE POINT ON THE GROUND

2 TIE IN REFERENCE POINT TO A LAND-MARK SUCH AS A ROAD JUNCTION HOUSE CORNER ETC THAT CAN BE FOUND ON A STANDARD MILITARY MAP

3 COMPLETE THE AZIMUTH BLOCK

4 COMPLETE THE FOLLOWING INFORMATION IN THE IDENTIFICATION BLOCK UNIT REF PT REMARKS MAP AND SHEET NO OIC NAME SSAN

5 STARTING FROM THE REFERENCE POINT RECORD THE MAGNETIC AZIMUTH IN DEGREES (°) AND DISTANCE IN PACES (P) OF EACH LEG FROM THE FRIENDLY POSITION TOWARD THE ENEMY POSITION AND FROM RIGHT TO LEFT OR LEFT TO RIGHT ACROSS EACH ROW OF MINES HOWEVER ALL ROWS MUST BE RECORDED IN THE SAME DIRECTION WHICHEVER DIRECTION IS USED THE STARTING POINTS OF THE ROWS MUST BE MARKED A1 B1 ETC AND THE ENDING POINTS MARKED A2 B2 ETC AS SHOWN IN THE EXAMPLE EACH MINE IN EACH ROW WILL BE NUMBERED SEQUENTIALLY FROM THE STARTING POINT TO THE LAST MINE IN THE ROW

6 FILL IN THE TABULAR BLOCK (SEE EXAMPLE)

7 FILL IN THE SCALE BEING USED WHERE SPACE IS PROVIDED SCALE 2CM= AND FILL IN THE PACE (P) READINGS IN THE RIGHT MARGIN

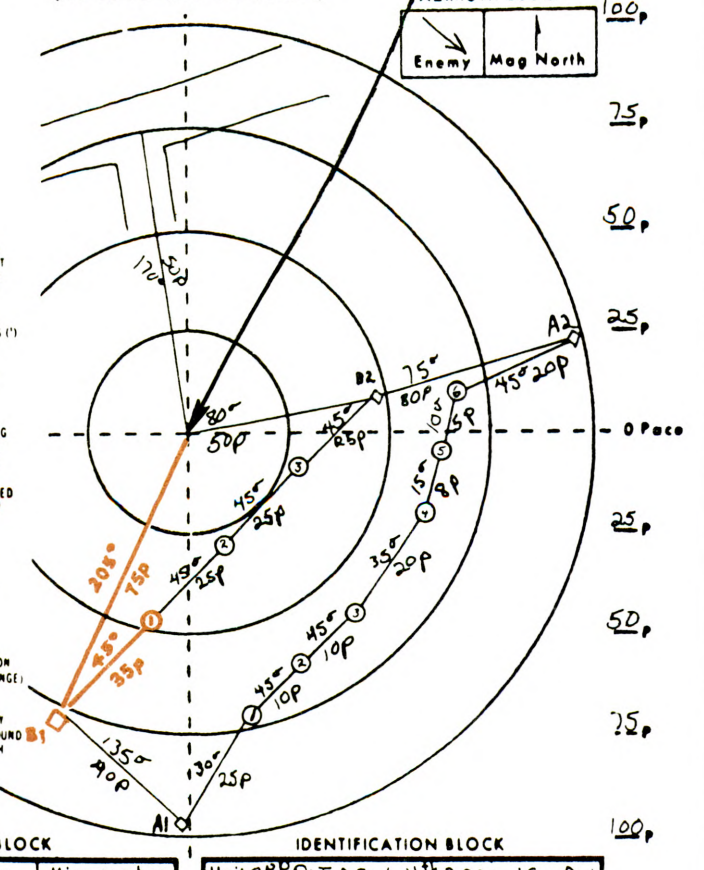
8 MAKE ALL MINEFIELD REPORTS (INTENTION INITIATION COMPLETION TRANSFER AND CHANGE) BY SOME SECURE MEANS

9 NOTE WHAT HAS BEEN USED TO IDENTIFY A1 & B1 I E 2x4 DRIVEN FLUSH WITH GROUND STEEL PICKET OR FENCE POST WRAPPED WITH ENGINEER TAPE ETC

SCALE: 2cm = 25 paces

AZIMUTH BLOCK

Enemy | Mag North



TABULAR BLOCK

Row	Type	Actuation	Mine number
A	M16A1	TRIPWIRE	1, 2, 6,
	M21	PRESSURE	3, 4, 5
B	M16A1	TRIPWIRE	1, 3
	M18A1	CONTROLLED	2

Remarks LANDMARK IS ROAD JUNCTION AT NA1234H09

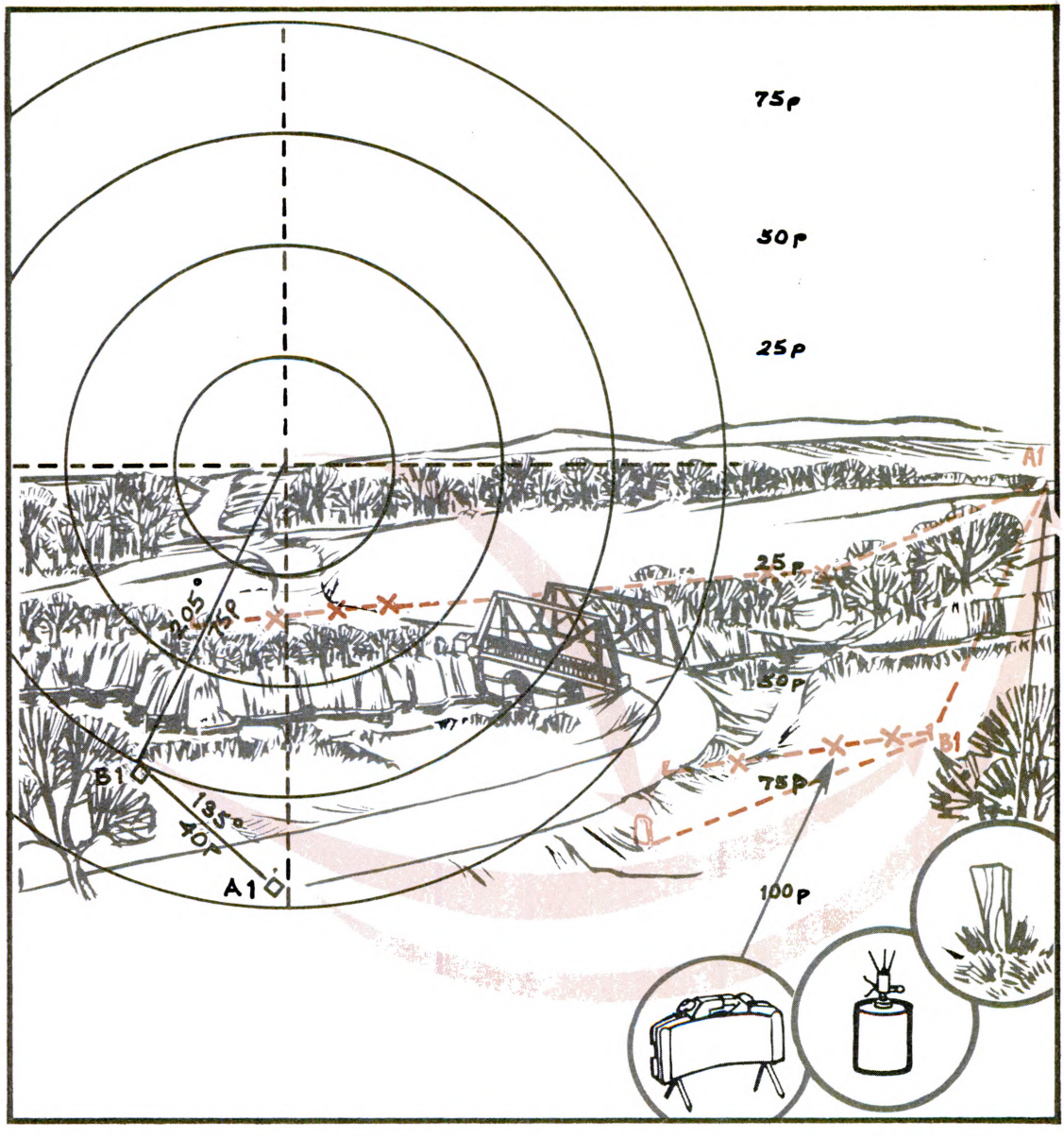
IDENTIFICATION BLOCK

Unit 2ND PLT, A CO 1-4TH 2 BDE, 1 CAV DIV	
Ref Pt TREE STUMP SIDE OF ROAD	
Remarks POINTS A1 & A2, B1 & B2 ARE MARKED WITH 2"x2" STAKES	
Map & Sheet No TALBOT 5568	
Name of OIC LT. ALLAN	
Signature [signature]	TIME & DATE 1700 6 Nov 75
Mines removed	
Mines transferred	

DA FORM 1355-1-R, 1 July 75 REPLACES DA FORM 1355-1, 1 Mar 68 WHICH IS OBSOLETE

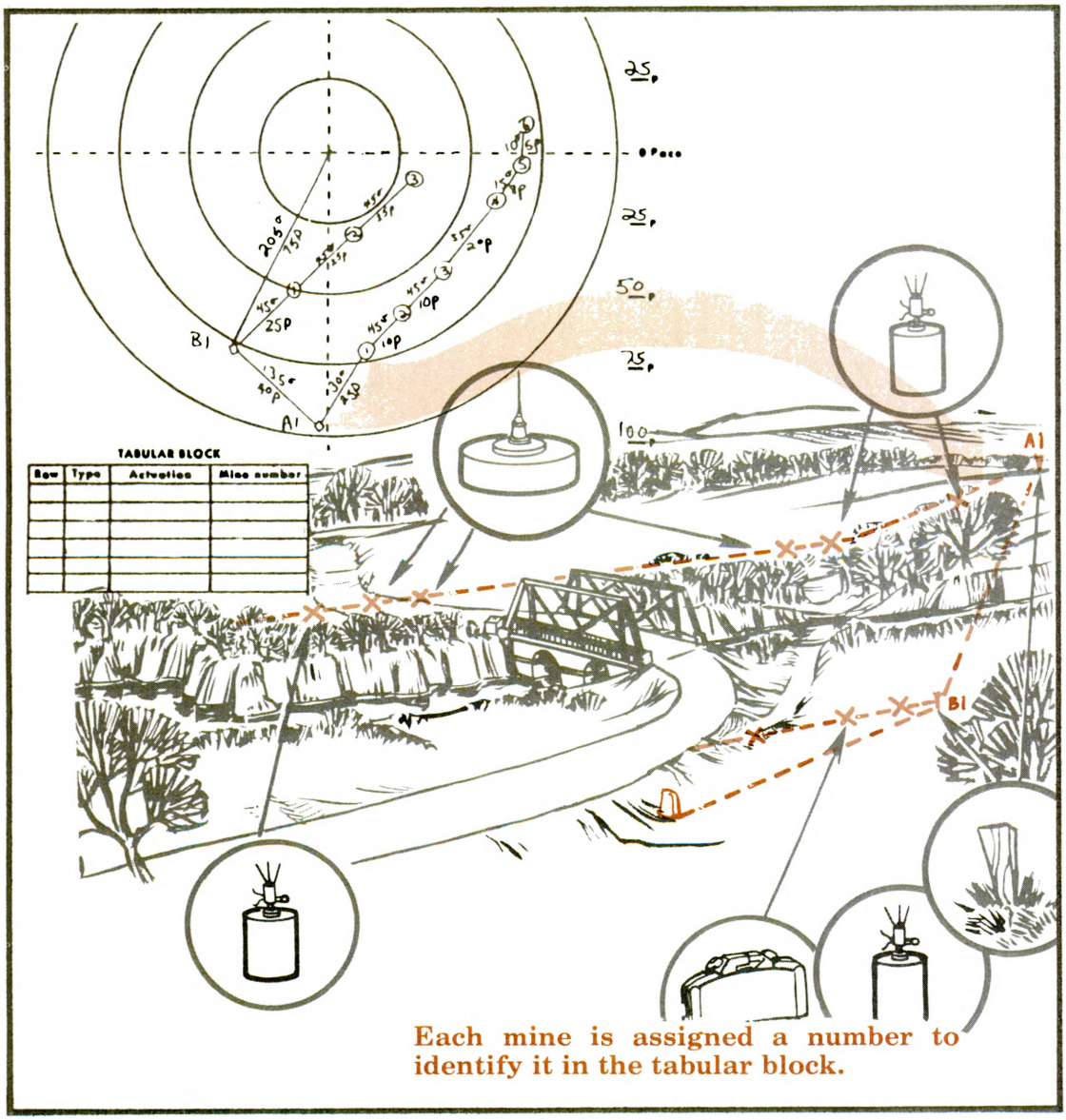
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Now measure the azimuth and distance to a point 15 to 25 paces from the first mine in A row. Place a marker at this point and record it as A-1.



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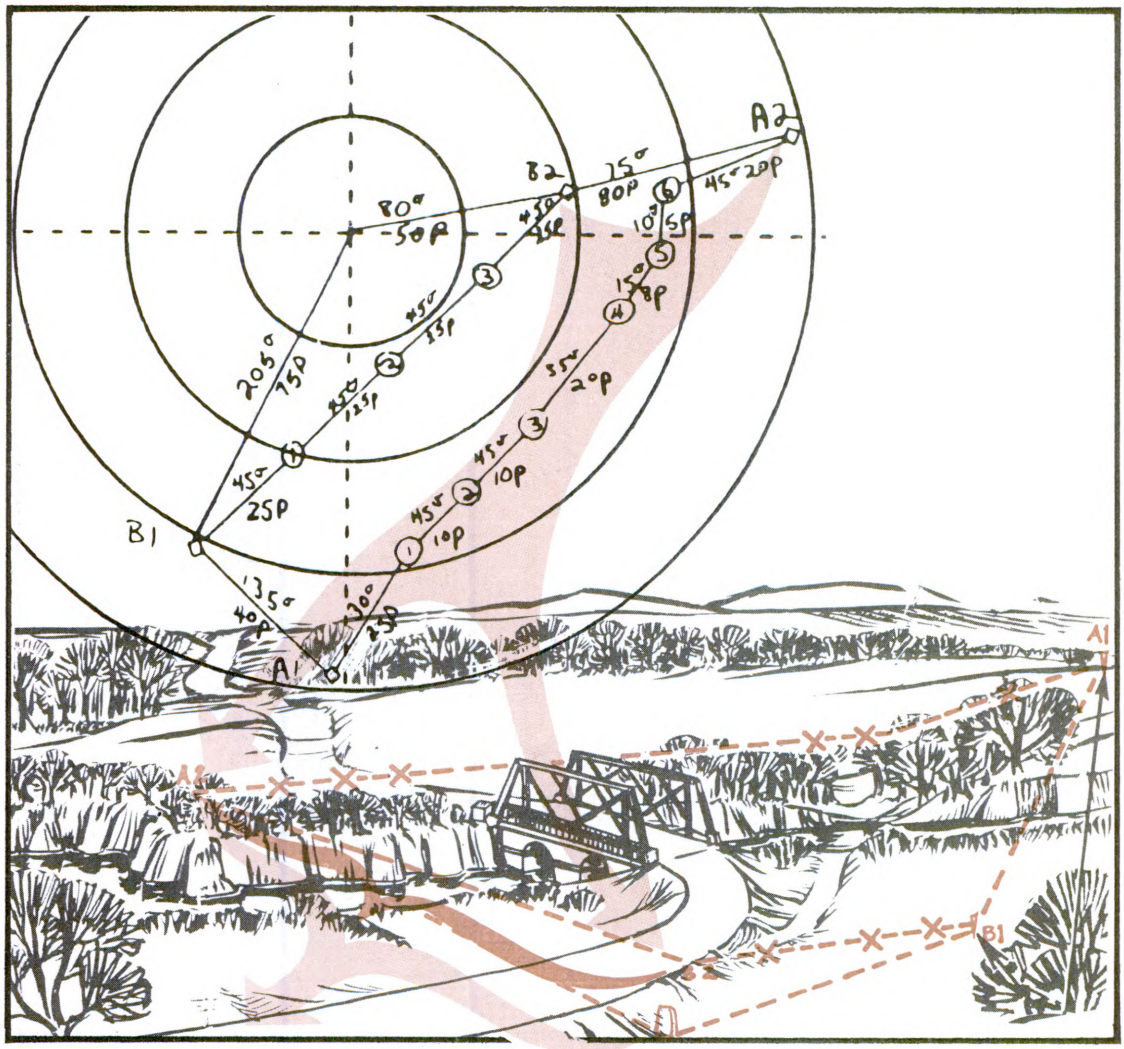
Measure the distance and azimuth from A-1 to the first mine and record them. Then measure the distance and azimuth from the first mine to the second, and so on until all mine locations have been recorded as shown. Repeat this procedure for the second row.



Each mine is assigned a number to identify it in the tabular block.

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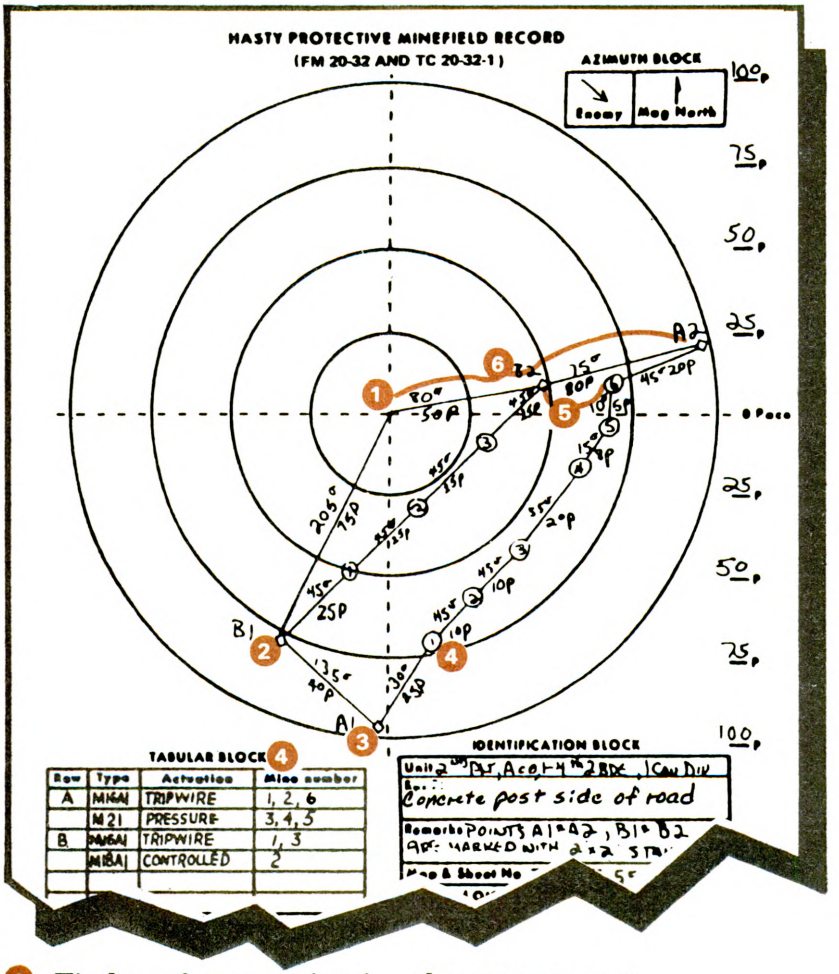
When the last mine location is recorded an azimuth and distance are measured from that point to another arbitrary point, A-2 and B-2. Here a marker is placed as at A-1 and B-1.



Now measure the distance and azimuth from the reference point to B-2, and from B-2 to A-2, and record them.

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Your form should now look like this.

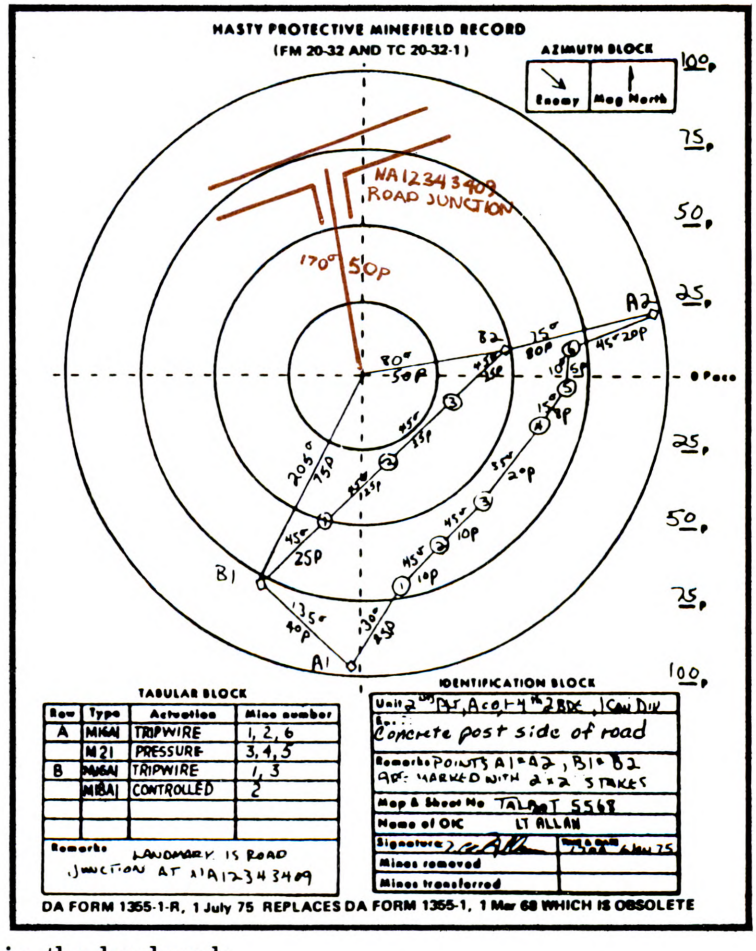


1. Find a reference point, i.e., the concrete post.
2. Find and record the distance and azimuth to an arbitrary point 15 to 25 paces to the right of the first mine. Label it B-1.
3. From B-1, find the azimuth and distance to an arbitrary point A-1 15 to 25 paces from the first mine in the "A" row.
4. From A-1, measure the azimuth and distance to the first mine in the row; from that mine to the second, etc., until all are recorded. Do the saem for "B" row. Record them in the tabular block.
5. From the last mine in each row find the azimuth and distance to arbitrary points A-2 and B-2.
6. From the reference point, find the azimuth and distance to B-2; then from B-2 to A-2.

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When you retrieve the mines, start at the reference point and move to B-1 using the azimuth and distances as recorded. Then move from B-1, to the mine. However, if B-1 is destroyed, move from the reference point to B-2 using that azimuth and distance. You will now have to shoot the back azimuth from B-2 to the last mine, i.e., add or subtract 180° from the recorded azimuth. The stakes at A-1, B-1, A-2 and B-2 are necessary because it is safer to find a stake when traversing long distances, than to find a live mine.

- Now tie in the reference point with a permanent landmark that can be found on your map. Measure the distance and azimuth from this landmark to the reference point. The landmark might be used to help others locate your minefield should it be abandoned. Finally, complete the tabular and identification blocks. Your completed form should look like this:



- While you are tying in the landmark, your men can arm the mines. Arm the mines nearest the enemy first, letting your men work their way back to the platoon position safely.

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Now that the field is laid and the paperwork is done, call your commander and report that you have completed the field.

While the unit and the minefield stays in place, this form stays with you. If the minefield is transferred to another platoon, the gaining platoon leader signs and dates the "mines transferred" block and accepts the form from you. When the minefield is removed, the form is destroyed. If the minefield is left unattended/abandoned, this form must be forwarded to your commander, where the information is transferred to more permanent records. In summary, here are the steps for installing a hasty protective minefield.

- Report intention to lay a hasty protective minefield and get authorization to lay.
- Reconnoiter. Find the best places for mines based on likely enemy avenues of approach, and your platoon's ability to keep the mines under observation.
- Report initiation of the minefield.
- Have the mines placed on the avenues of approach. Do not arm the mines yet. Use only metallic mines. Don't use boobytrap devices.
- Record the minefield on DA Form 1355-1-R.
- Arm the mines, working from the enemy side to the friendly side.
- Report completion of the minefield.
- Always integrate these mines with your other defense plans.

NOTES:

Train in the use of hasty protective minefield often enough so that it becomes a comfortable part of your operation.

Plastic versions of each mine depicted are available through TASC in either an inert or a casualty-assessing mode.

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Section III
WIRE AND DEMOLITIONS

As part of your company's efforts, your platoon or squad may emplace obstacles. You will usually be given the exact location for these obstacles. To be effective, they should be--

- under friendly observation and covered by fire.
- concealed from enemy observation as much as possible.
- erected in an irregular pattern.
- employed in depth.
- coordinated with natural obstacles.
- of no advantage to the enemy.

TRIPLE STANDARD CONCERTINA FENCE

Of the wire barriers you may build, the most common is the triple standard concertina fence. It is built of either barbed wire concertina or barbed tape concertina. There is no difference in construction methods.

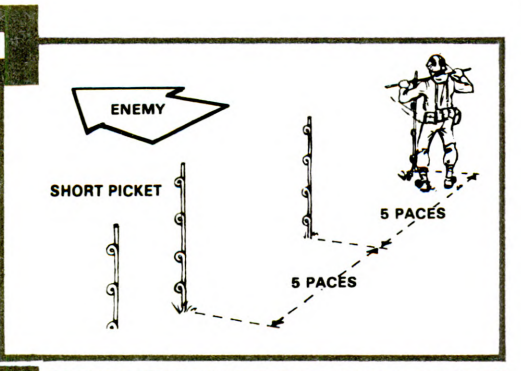
The material and labor requirements for a 300 meter triple standard concertina fence are listed below:

160	long pickets
4	short pickets
3	400 meter reels of barbed wire
59	concertinas
317	staples
30	man-hours to erect

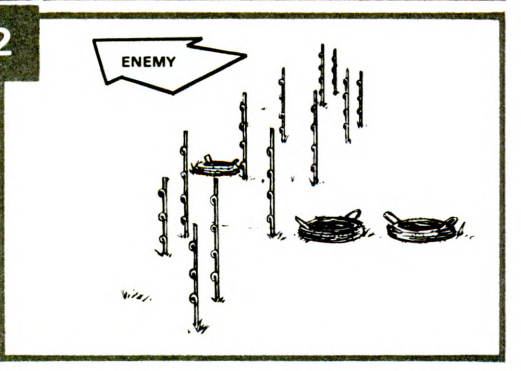
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TO CONSTRUCT:

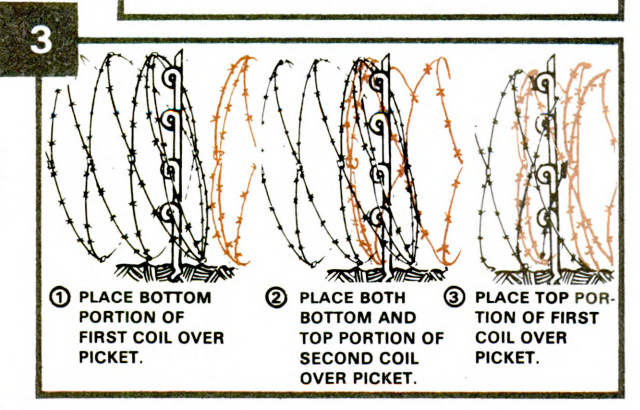
Lay out and install all pickets from left to right (as you face the enemy). Put the long pickets 5 paces apart, and the short (anchor) pickets 2 paces from the end of the long pickets. The enemy and friendly picket rows are offset and are placed 3 feet apart.



Now lay out all concertina rolls. Place one roll in front of the third picket on the enemy side, and two rolls to the rear of the third picket on the friendly side. Repeat this operation for every fourth picket thereafter.

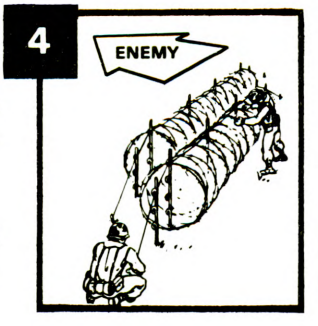


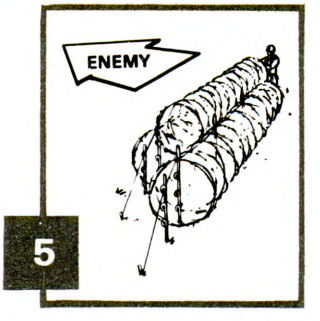
Install the front row concertina and horizontal wire. Place the concertina over the pickets as shown in No. 3.



Install the rear row of concertina and horizontal wire as shown in No. 4.

Install the top row concertina and join the rear horizontal wire (No. 5).





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DEMOLITIONS

The platoon or squad may often be called upon to perform demolition work. Basic to a successful demolition effort is proper preparation of a charge.

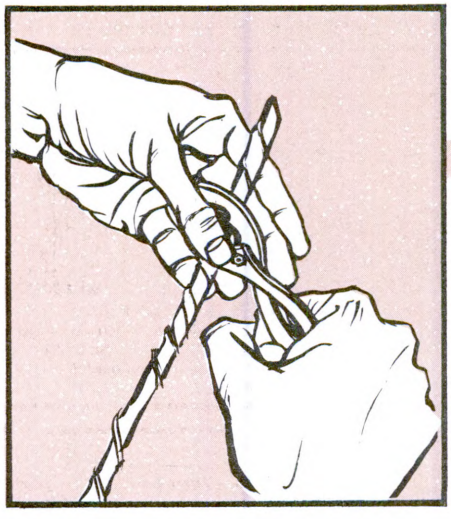
There are two basic methods to detonate a demolition charge.

Nonelectric.

Electric.

NONELECTRIC. In this method, the following steps should be followed:

- Clear the fusewell of a block of TNT or push a hole in a block of C4 plastic explosive 1/3-inch deep and 1/4-inch in diameter.



- Cut and discard a 6-inch length from the free end of the time blasting fuze to prevent a misfire caused by the exposed powder absorbing moisture from the air.

- Compute the burning time of a 3-foot section of fuze to determine how much fuze you should use to allow the person detonating the charge to reach a safe distance from the explosion. Divide the burning time by the length in feet and determine how many feet of fuze you need.

- Inspect your nonelectric blasting cap to insure it is clear of foreign matter.

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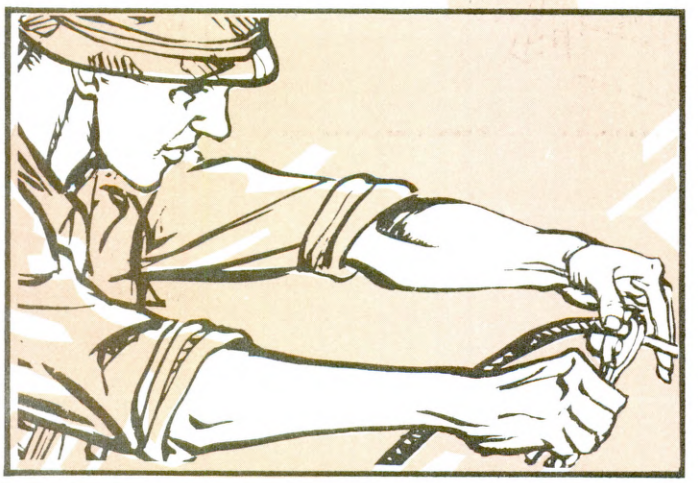
- Gently slip the blasting cap over the fuze so that the flash charge in the cap is in contact with the end of the time fuze.

- After seating the cap, crimp it 1/8-inch from the open end with a set of M2 cap crimpers. Point the cap out and away from you when crimping.

- Insert the blasting cap into the cap well. When using C4, mold it aound the cap.

- Insert the free end of the fuze into an M60 fuze ignitor and secure it in place by tightening the fuze holder cap.

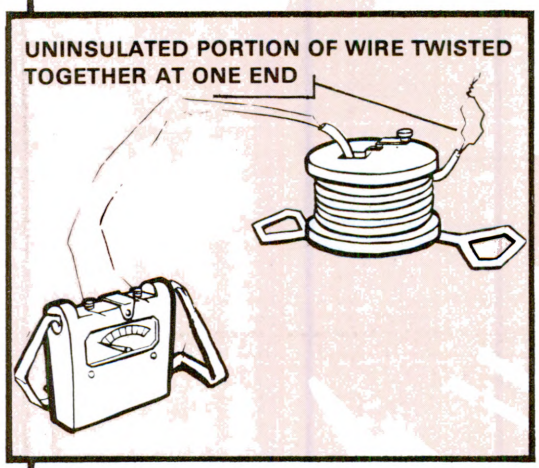
- To fire, remove the safety pin of the fuze ignitor and pull on the pull ring.



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ELECTRIC. **For this method, take the following steps:**

- After locating a safe firing position, lay out your firing wire from the charge to the firing position. Always keep the firing device with you - don't leave it at the firing position.
- Check your firing wire with a galvanometer to make sure the firing wire does not have a short circuit or a break.
- Prepare the cap well in TNT or C4.
- Insert the cap into well and secure with priming adapter (TNT) or mold the explosive around the cap (C4).
- Splice lead wire of cap to firing wires.
- Move to firing position and check the wire circuit with the galvanometer.
- Fasten firing wires to the posts of the blasting machine.
- Operate the blasting machine to fire the charge.



NOTE:

Take care when using demolitions. Only leaders should set charges. Clear away all troops before detonating charges. If a nonelectric charge misfires, wait at least 30 minutes before investigation.

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DEMOLITION GUARD

A demolition guard mission requires a platoon or squad to secure a site where demolitions have been emplaced by engineers. It may also require that the demolitions be fired by a platoon or squad leader under certain circumstances. Additionally, the demolitions guard may be responsible for:

Control of traffic and refugees.

Giving written orders to a demolition firing party (one or two engineers who may be attached) to arm or fire the emplaced demolitions.

Reporting the effectiveness of the fired demolitions.

Specific and detailed orders are given to the leader of a demolition guard. They are usually issued in a target folder containing the standard NATO forms (**ORDERS TO THE DEMOLITIONS GUARD COMMANDER**) and any pertinent engineer information. The orders will provide clear instructions as to the nature and exact location of the target site, procedures for arming and firing the demolitons, code words (if used), and any other duties to be performed by the demolition guard. These orders must be **read, understood, and followed.**

Target folder containing standard NATO forms (ORDERS TO THE DEMOLITION GUARD COMMANDER)

Code words if used

Orders must be Read, Understood, and Followed

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Section IV
BREACHING OBSTACLES

An obstacle is anything that stops, delays, or redirects movement. The enemy prepares obstacles to stop your movement, to slow you down, or to cause you to move into an area which he has selected as a kill zone. If he has selected an area, he will have prepared it so that he can inflict great damage to your unit when you move into this kill zone. He will exploit natural obstacles such as defiles, rivers, thick woods, swamps, and cliffs, and reinforce them with manmade obstacles. There are seven basic kinds of manmade obstacles. You must know the tactics and techniques used to overcome these obstacles and the problems which they will present.

Some obstacles may not restrict dismounted elements but will restrict vehicular movement. You may be required to clear obstacles to allow the forward movement of vehicles. Obstacles are normally covered by preplanned direct and indirect fire to keep attacking troops from breaching them. You may not be able to keep the enemy from knowing that you're going to breach, but you can keep him from knowing where and when you will try to breach. If you do, he can't concentrate his fire on the breaching site.

BREACHING INCLUDES FOUR DISTINCT TASKS

THESE MAY OCCUR SIMULTANEOUSLY.

1. Suppress the enemy covering the obstacles, using all available fire to reduce the volume and accuracy of his fire.
2. Request smoke to obscure the obstacle area and conceal your troops without indicating to the enemy where the breach will occur. Prevent the enemy from knowing exactly where and when you intend to breach the obstacle.
3. Secure the far side of the obstacle to preclude enemy interference with troops clearing it. This step may develop into a major infantry battle when you are clearing antitank obstacles.
4. Reduce the obstacle by whatever means are appropriate.

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MINEFIELDS

The preferred way to clear a lane through a minefield to use a rocket-propelled line charge or similar device. However, these devices may not be available. To maintain the momentum of the attack, you must be prepared to immediately help breach minefields.

To breach a minefield:

1. Probe a footpath to find prints--mark mines.
2. Secure the far side.
3. Destroy marked mines with demolition (1/4-lb charges).
4. Mark cleared lanes.

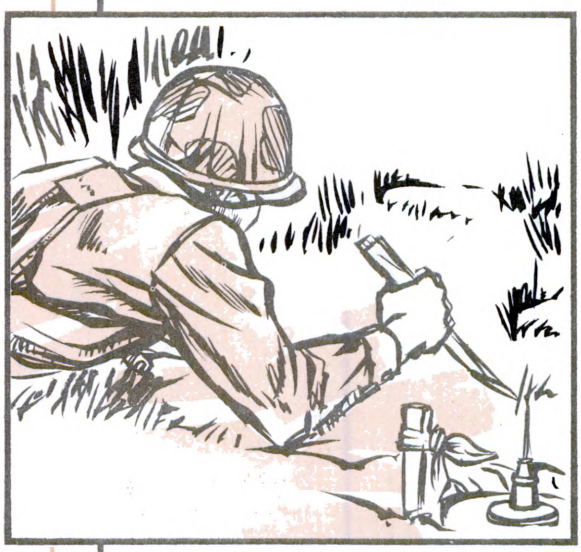
DO NOT TRY TO LIFT THEM.





The minefield is a convenient, easily constructed, portable obstacle that is frequently employed to block large areas. Minefields differ in layout and cluster composition, and in the mix of antitank and antipersonnel mines, depending upon the availability of mines and the nature of the avenue of approach it is blocking.

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The only way to clear a minefield without special equipment is to probe with pointed sticks. Do not use bayonets because they can detonate any known antipersonnel (AP) mines and will detonate any magnetic mines. Artillery mortar fire is normally used to suppress the enemy and obscure the area with smoke. One squad probes while the platoon (-) overwatches. If indirect fire is not available, use grenade launchers and machinegun fire to keep from disclosing the point where the breach will be made. If the probing squad is discovered and hit by direct fire, the platoon (-) shoots supporting fire.

When a squad has a mission to probe a footpath through a minefield, it will use two probers; one in front, clearing a lane wide enough to crawl through, and a second man clearing 10 meters behind him and slightly to one side so that their lanes overlap.

ROTATE THE PROBERS PERIODICALLY

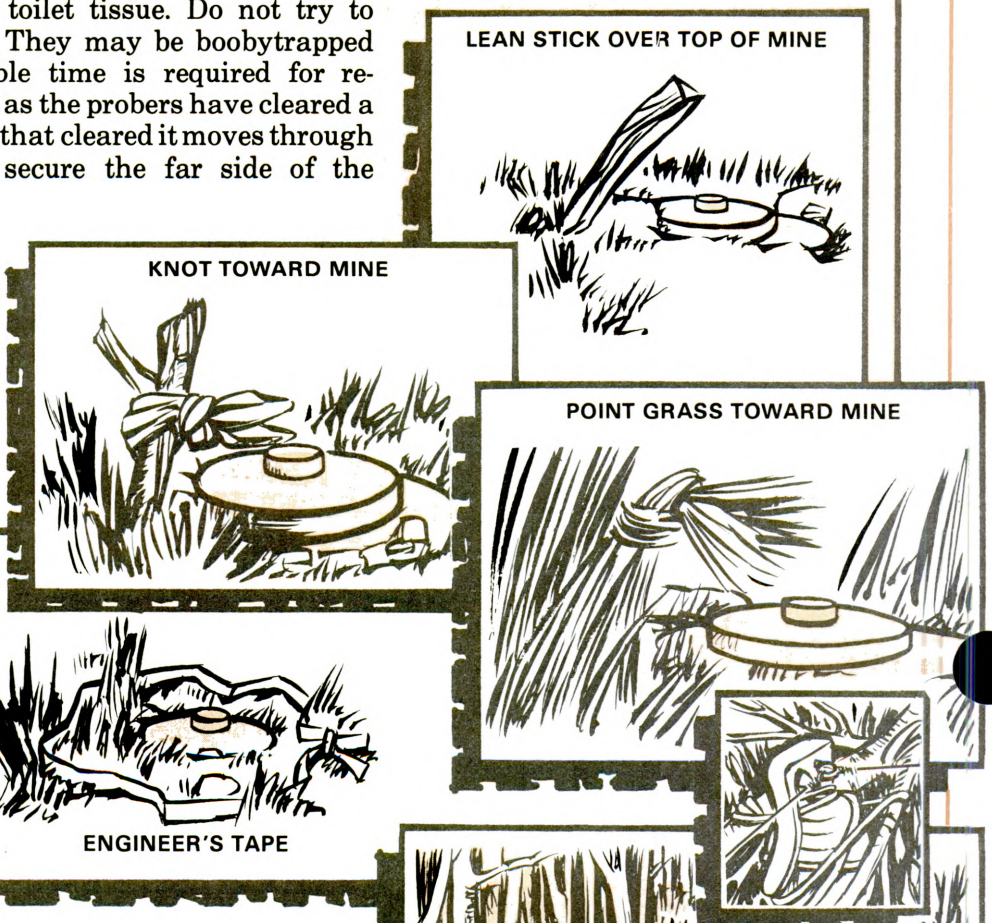
The probing team should not be encumbered by weapons, fieldpacks, etc. Their equipment is carried by other members of the squad. Two other men crawl along behind to secure the probers, carry additional supplies, or to take a prober's job if one becomes a casualty.

COVER THIS ACTIVITY WITH FIRE TO YOUR FLANKS.

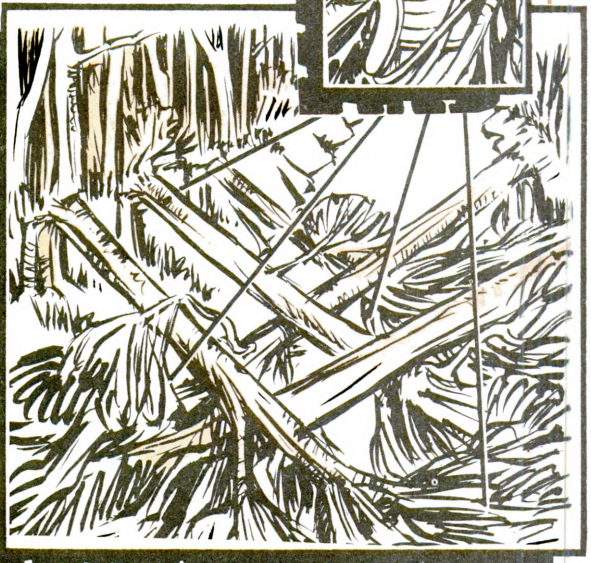
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MARKING MINES

Mark mine locations with sticks, engineer tape, cloth, or toilet tissue. Do not try to remove mines. They may be boobytrapped and considerable time is required for removal. As soon as the probers have cleared a lane, the squad that cleared it moves through the lane and secure the far side of the minefield.



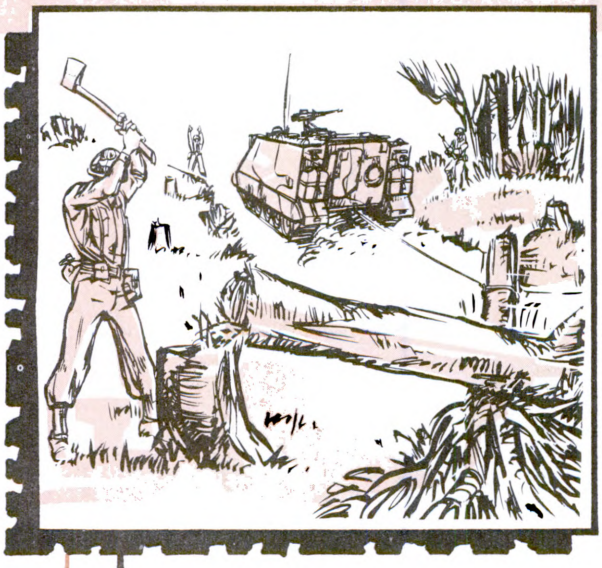
An abatis is an obstacle created by cutting down trees so their tops are criss-crossed and pointing toward the expected enemy direction. It is most effective for stopping vehicular movement in a forest. Leave the bottoms of the trees attached to the stumps as high as possible to make removal more difficult. This obstacle may be reinforced with mines and antihandling devices (booby-traps).



ABATIS

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CLEARING an ABATIS

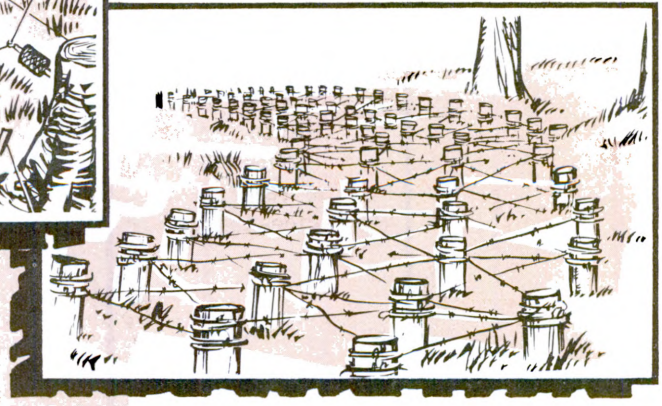


Before clearing an abatis, suppress the enemy's fire. You have pioneer tools or demolitions to cut the trees from their stumps. Tracked vehicles can be used to pull the logs out of the road. Mines and boobytraps must first be found and then neutralized by exploding them with C-4, or by pulling their tripwires with grappling hooks and long ropes.

For demolition work, you may get engineer support, to include, a combat engineer vehicle (CEV) with a 152-mm demolition gun.

Woods with trees 15 inches in diameter that are close together become obstacles to armored vehicles. Tree stumps or vertical posts 15 inches in diameter and 2 to 4 feet high are also obstacles to armor. These obstacles are most effective when combined with tactical wire, mines, and boobytraps. Use the same techiques employed for a minefield to suppress the enemy's fire and to neutralize mines and boobytraps. After securing the far side, remove the post obstacles with demolitions and pioneer tools. Just as with minefields, clear lanes through the barrier. Demolitions can be used to loosen the posts, or they can be removed by pulling them out with vehicles.

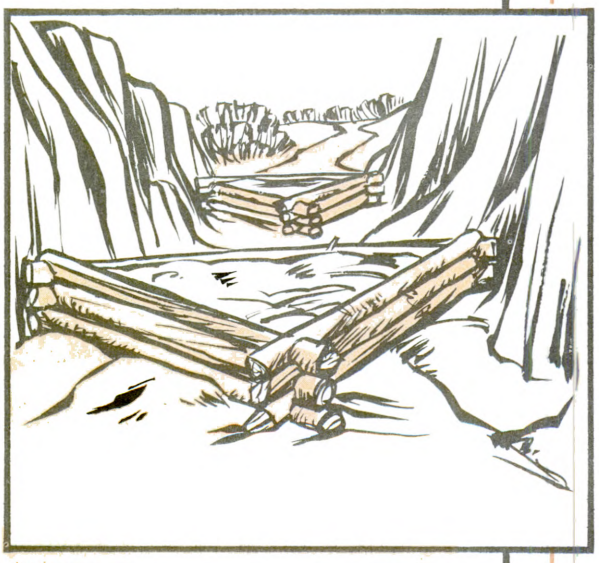




STUMP AND POST OBSTACLES

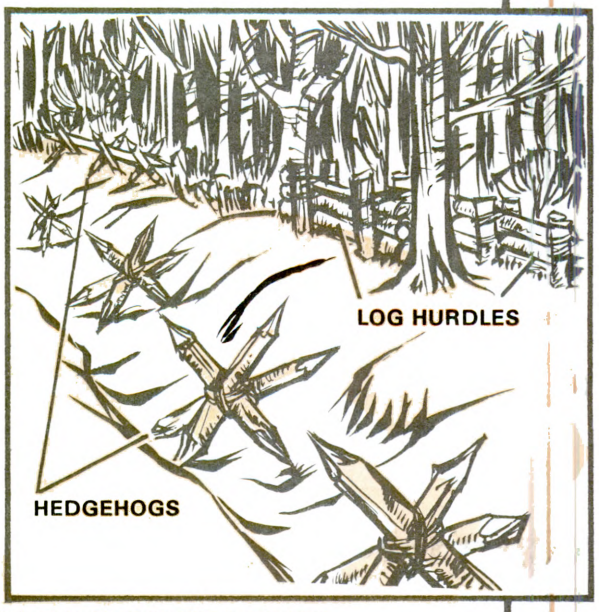
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In addition to post obstacles and abatis, logs are used to make triangular cribs which are filled with earth and rock. These are used to block narrow roads and defiles. Log hurdles using four 6- to 8-inch verticals and three 8- to 10-inch horizontal logs laced together with wire or cable also stop wheeled traffic and slow tracked vehicles. Easily built with pioneer tools, they are frequently found in the woods. If this type of obstacle is encountered, begin immediately to reconnoiter by fire against likely rocket-propelled antitank guided missile locations. These obstacles are intended to slow vehicles long enough to get a good shot at them. Request smoke followed by artillery with a mix of HE-SQ, HE-VT, and smoke or WP immediately.



LOG CRIB

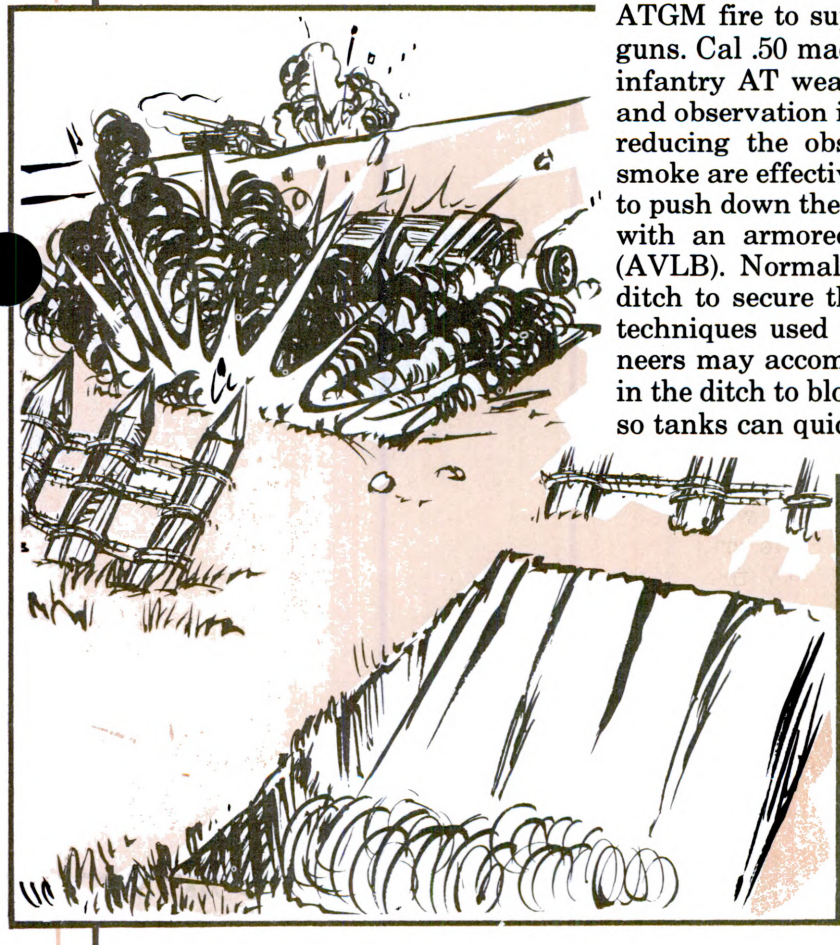
Squads should dismount, sweep the area, and clear out hunter-killer teams. Watch out for AP mines, boobytraps, and command-detonated mines which may be employed in the surrounding area. Once cleared of enemy fire, proceed to take the barrier apart using demolitions, pioneer tools, and vehicles. Clear or neutralize mines first - watch for pressure release devices. Hit the crib first with some indirect, tank, or CEV fire, then demolish it. If no tanks are available, use your Dragon. Then, use length cables to pull it apart. Better to lose one missile or cable than a soldier. The enemy knows that you will eventually have to clear the obstacle away, so he will be sure to do something to make you regret it.



OTHER LOG OBSTACLES

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Tank ditches are usually in open terrain. They are time-consuming and hard to build. Tank ditches are at least 4 meters (13 feet) wide and 1.8 meters (5 feet) deep. The enemy will normally put barbed wire inside them to keep you from dismounting and using the ditch for shelter. He may prepare the approaches, sides and bottom of the ditch with AT and AP mines or chemicals to make breaching difficult. Tank ditches must be covered by AT fire to be effective. Use tank or ATGM fire to suppress enemy tanks or AT guns. Cal .50 machinegun fire will suppress infantry AT weapons. Once the enemy fire and observation is suppressed, you can start reducing the obstacle. If suppression and smoke are effective, use a dozer tank or CEV to push down the side of the ditch, or cross it with an armored vehicle launched bridge (AVLB). Normally, infantry will cross the ditch to secure the far side using the same techniques used to clear a minefield. Engineers may accompany infantry and remain in the ditch to blow down and slope the sides so tanks can quickly join the infantry.



TANK DITCHES

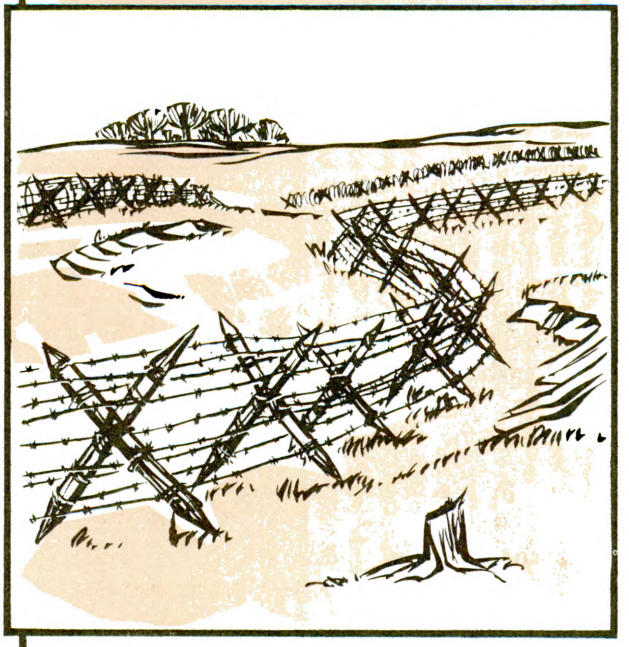
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DEMOLITION OBSTACLES



Properly emplaced demolitions can create rock slides, road craters, and other obstacles to vehicular traffic. The enemy will recess the sides of the crater with spoil to make it difficult for a tank to back out. This also makes it more difficult to use demolitions or the demolition gun of the CEV to cave in the sides of the crater to permit entry or exit. With craters, you use the same techniques as for tank ditches. If you have engineers, they can help with the CEV demolition gun and earth-moving equipment. You have few assets to do much about landslides, except to assist in the suppression and security necessary to permit the engineers to bring up earth-moving equipment to reduce the obstacle. However, you may become involved in mine and boobytrap clearance. An enemy defending a built-up area may demolish masonry, brick, or concrete buildings to block avenues of approach.

WIRE OBSTACLE



Wire fortifications and entanglements are used in separating accompanying infantry from armor. They can also be employed as roadblocks against wheeled vehicles. Tactical wire is used in conjunction with other obstacles when possible. Wire is relatively easy to breach and must be covered by fire to be effective. Wire by itself is not a significant obstacle to a mechanized or armor force. You must, of course, suppress the enemy's fire, obscure his field of vision, establish the obstacle. You can breach wire with cutters, bangalore torpedoes, or demolitions. Watch out for antipersonnel mines and boobytraps. These must be neutralized with demolitions or grappling hooks first.

Once through the wire, you must assault nearby enemy positions and reestablish security to permit the movement of the rest of your platoon through the obstacle. Tank fire, the demolition gun of the combat engineer vehicle, and massed fire of the platoon will help you breach wire entanglements.

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APPENDIX N

HOW TO GET THE FIRE OF NONORGANIC WEAPONS ON TARGETS

As a member of the combined arms team, the mechanized infantry platoon has available an impressive array of fire support. It may include mortars, artillery, TOWs, tanks, attack helicopters, USAF aircraft, air defense weapons in the ground support role, and naval gunfire. To win a fight, you must be able to put the fire of these weapons on target.

REQUESTING AND ADJUSTING INDIRECT FIRE

Each mechanized infantry company/team will have a fire support team (FIST) working with it. The FIST links the company, platoons, and squads to the indirect fires which are available (both mortars and artillery). Normally, the platoon will have a forward observer (FO) team consisting of a forward observer and a RATELO attached to it. This team relays requests for indirect fire and adjusts the fires whenever possible. It moves with the platoon leader.

Most of the time the FO will be able to put indirect fires on the target since he is with the platoon leader and should be able to see the action. However, in some situations the FO will not be able to see, and the squad leaders or team leaders will have to call for fire relaying through the FO. This may happen when the carrier teams are operating separate from the maneuver teams, when squads are widely separated (such as a squad OP), or when the terrain won't allow the FO to see everywhere.

At times the platoon may not have an FO. In this case they either relay to the FIST chief that is with the company/team commander, or talk directly to the fire direction center (FDC) of the firing unit. The company/team commander will tell you what to do when he issues his order for the operation.

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How to Call for Fire.

Since there will be occasions when the squad, the carrier team, or the maneuver team will have to call for and adjust its own fires, every leader should know how it is done. Additionally, you should train your radiotelephone operators so that they can call for fire. This allows you freedom to control your men while the RATELO is getting fires on the target. There are two ways to call for fire--the standard six part call for fire and the abbreviated call for fire.

A standard call for fire consists of:

1. Observer identification.
2. Warning order.
3. Location of target.
4. Description of target.
5. Method of engagement.
6. Method of fire and control.

1

2

Identification of Observer and Warning Order. These two elements tell the FDC who you are, give you priority on the net, tell the FDC what you want to do, and what target location method you are using, e.g., **Y5A47, THIS X3B33, ADJUST FIRE, SHIFT F6, OVER.**

3

Location of Target. This element can be a grid (ccordinate), a polar plot, or a shift from a known point. If a grid is used, tell the FDC the direction from you to the target when you adjust. If a shift from a known point is used, the point must be known to both you and the FDC. If a polar plot is used, the FDC must know where you are. If the FDC doesn't know your location you must encode it and send it to them. **500M, NORTHWEST, OVER.**

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4 ***Description of Target.*** Tell the FDC what the target is, what it's doing, what size it is, and how well protected it is, e.g., **SAGGER POSITION, OVERHEAD COVER.**

5 ***Method of Engagement.*** If you want any round or fuze other than HE quick, ask for it. Otherwise, the FDC will decide what is best. If the target is within 600 meters of friendly troops, announce DANGE CLOSE, e.g., **DANGER CLOSE, HE AND WP.**

6 ***Method of Fire and Control.*** Normally, you should try to adjust the rounds onto the target. If you intend to, tell the FDC you will ADJUST FIRE. If you cannot adjust fire and you think the target location is accurate to within 50 meters, tell the FDC that you: **CANNOT OBSERVE, FIRE FOR EFFECT.** If you want gunners to hold their fire until you signal, you say **AT MAY COMMAND, e.g., AT MY COMMAND, ADJUST FIRE.**

ABBREVIATED FIRE REQUESTS

Use abbreviated fire requests when you are taking fire and want indirect fire on the target as soon as possible. Shorten the call for fire to the essential elements and substitute the words **IMMEDIATE SUPPRESSION** for **FIRE MISSION.** The call for fire is now --

A4Y57 THIS IS X3B33, IMMEDIATE SUPPRESSION, GRID 345678, OVER.

OR

A4Y57 THIS IS X3B33, IMMEDIATE SUPPRESSION, 300 METERS NORTHEAST OF T6, OVER.

Although in most cases it is preferable to use the standard call for fire, the abbreviated fire request contains enough information to allow the FDC to fire the mission. Every soldier should know that in order to put indirect fire on a target, he has only to tell the FDC who he is and where the target is.

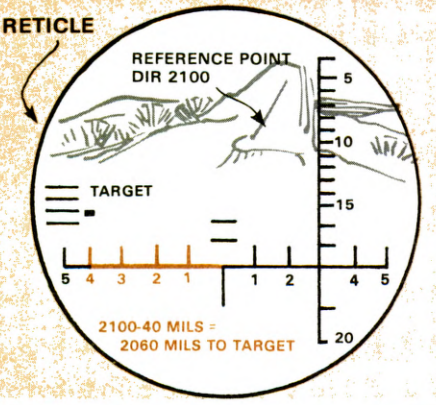
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SHIFT FROM A KNOWN POINT

From a target reference point (TRP) or any other location known to both observer and the FDC (e.g., a marking round), announce the shift as a direction from the known point to the new target, using one of the eight points of the compass and the straight line distance between the two targets.

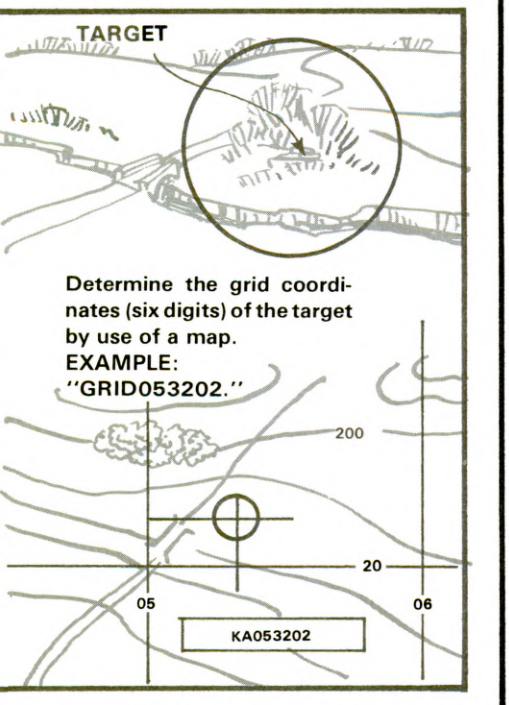
A direction to a new target should be transmitted to the FDC following the method of control and prior to the first adjustment. The most accurate method, if you know the direction to a known point, is to measure the angle between the known point and the new target using the mil scale on the binoculars reticle. Other methods include using a compass or scaling the direction from a map. ***Be as accurate as you can; use of mils is desirable.***

MIL SCALE ON BINOCULARS



If your (observer) location is known by the FDC, the target location may be reported by giving the distance from the observer to the target along with the observer to target (OT) direction. Example: Determine direction (azimuth), estimate or measure distance, then give the information--direction 1600, distance 900.

TARGET LOCATION USING A MAP.



SUBSEQUENT CORRECTIONS

The purpose of the adjustment is to move the center of impact to within 50 meters of the center of the target. Do this by sending the FDC subsequent corrections for lateral shifts and range changes. The FDC can talk you through an adjustment if necessary.

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The burst is moved to, and kept on, the OT line in order to get positive range spottings.

When the range spotting is doubtful, request a lateral correction (to place the burst on the OT line).

Make range corrections to bracket the target between two successive rounds. Then split this bracket until you are sure that the next round will be within 50 meters of the target. You then call for FIRE FOR EFFECT.

Fire for effect is one or more rounds from each gun of the unit firing at the target. Dispersion of the guns will cause the rounds to saturate the target area with shell fragments. For subsequent corrections, use the shift-from-a-known-point method, using location of the impact of the last round as the known point.

To end a fire mission, state END OF MISSION and report the results of the fire for effect.

ADJUSTMENT OF ILLUMINATION

Illumination is called for and adjusted like other indirect fire except for the method of engagement and method of fire and control.

Method of Engagement. Request illuminating shell rather than a type of fuze.

Method of Fire and Control. The type of adjustment is based on how much visibility you need in the target area. If you call for--

- "One gun." You will get one round from only one gun.
- "Two guns." You will get one round from two guns. They will burst simultaneously.
- "Four guns." One round from four guns, bursting simultaneously in a diamond pattern.

When you adjust illumination, range and lateral changes are made using standard adjustment procedures. The adjustment is continued until illumination is within 200 meters of the desired location. During the adjustment, if the point of burst is too high, the height of burst change is estimated from the height of the flare as it burned out. When the point of burst is too low, the change required is estimated from the length of time (T)

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in seconds the flare burned on the ground. By multiplying T x 10 (approximate rate of descent is 10 meters per second), the observer can determine the correction required.

NOTE: Some 155-meter illuminating flares have a descent of 5 meters per second.

Example: Flare burned 13 seconds on the ground; 13 x 10 = 130. Correction is UP 150 (round to nearest 50 meters).

PUTTING TANK OR TOW FIRE ON TARGET

Since you will habitually be working with tanks and TOWs, you must be able to direct the fire of these weapons at targets. There will also be times when tank and TOW crews will want to direct your fire. The procedures described below will work for both cases. Remember that the objective is to identify the target so that the crew of the weapon can rapidly acquire it visually.

HOW TO COMMUNICATE

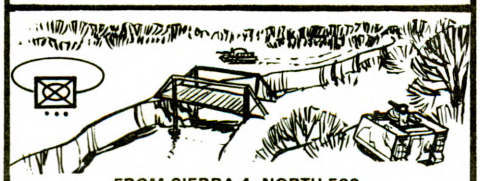
You can direct tank and TOW fire by radio, wire, or face-to-face. The best way is face-to-face but it requires the infantryman to climb up to the tank or the carrier. Tanks have the external telephone, and you can lay wire to the TOW if you are in a fighting position.

HOW TO DIRECT THE FIRE

By Reference Points.



FROM THE FARMHOUSE, LEFT 300, UP 400



FROM SIERRA 4, NORTH 500

Reference points are easily identified terrain features. You should select them before the operation begins and tell the tank commander or TOW crew what they are and how you will name or number them ("crossroad" or "A3"). Reference points must be easily identifiable features which allow no

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confusion. They should be selected from the ground itself and not from a map. From a reference point you can direct fire right or left, up or down if you are close to the tank or TOW. If there is any doubt about right or left, you can use a cardinal direction.

BY USING CUES FROM TANK GUN BARREL OR TOW LAUNCHER

If reference points are not used, either because they are not easy to see or have not been selected, you can use the gun barrel or launch tube (if you can see it) as a base line from which a direction can be given, e.g., FROM THE TUBE, HALF LEFT, 1300 METERS.

POINTING OUT TARGET USING MACHINE GUN TRACER FIRE

Tell the tank or TOW the general area into which you are going to fire and have him follow your tracers to the target. Describe the general area in relation to where the tank or TOW is located, e.g., FRONT WATCH MY TRACERS.

BY GIVING THE RANGE, DIRECTION, AND DESCRIPTION OF TARGET

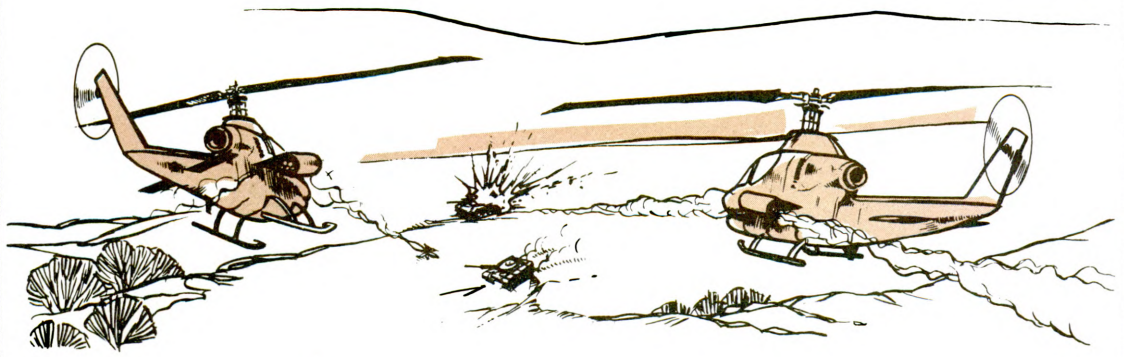
As you are trying to focus the tank or TOW crew onto a target, narrow the area which the crew must search and describe the target, e.g., BMP, 600 METERS NORTHEAST OF BRIDGE.

HOW TO CORRECT WHEN THE TARGET IS NOT IDENTIFIED

If the tank or TOW fails to identify the target or shoots the wrong one, give corrections based on the impact of the first round or give another description, e.g., FROM THAT ROUND, RIGHT 200, UP 100 or TANK, FROM THE POND 600 METERS EAST.

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CONTROLLING THE FIRE OF ATTACK HELICOPTERS



INITIAL CONTACT

While en route to a target area, the attack helicopters will contact you on the radio, e.g.--1L22, THIS IS 1X47, LIGHT FIRE TEAM ARRIVES ESTIMATED TARGET AREA IN 4 MINUTES, OVER. At this time, you must transmit a CALL FOR FIRE consisting of:

- Target location/description.
- Proximity of friendly unit to target. (DANGER CLOSE must be included when friendly unit is 600 meters or less from the target. When DANGER CLOSE is included, you must mark the location of your unit. The method of marking should be the one which least reveals your position to the enemy; e.g., panels, mirror, etc.)
- Protection of friendly unit. Are your men in good fighting positions, hasty positions, or moving?
- Direction of friendly unit from target (cardinal direction).
- Other friendly fire support considerations:

  Artillery/mortars firing in the area.

  Tactical air (attack direction/altitude).
- Dangers to flight. Location of known or suspected enemy antiaircraft weapons or other dangers to flight (wires in target area, enemy artillery fire impacting inthe target area, enemy aircraft, etc.).

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ADJUSTING FIRE

Attack helicopter fire, unlike indirect fire, allows the man shooting the ordnance to observe the impact and effect of the ordnance on the target. This simplifies the adjustment procedure. However, you must still be prepared to adjust direct aerial fire. When adjusting aerial fire--

- Establish a Reference Point. The point of impact of the first round(s) is the recommended reference point.
- Adjust for Target Strike. Do not try to bracket the target. This wastes ammunition.
- Transmit Corrections. Direction(s) and distance(s). Do not transmit sensings such as long, short, to the left, etc.

CONTROL PROCEDURES

When the helicopter fire team arrives over the objective area, the requestor (observer) is again contacted by the aircraft. You should MARK THE TARGET and STIPULATE THE METHOD OF ADJUSTMENT. Once the method of adjustment has been established, don't change it unless the situation dictates, at which time the fire team must be informed.

Target location can be given to an attack helicopter fire team by--

MARK THE TARGET

- Reference to a prominent terrain feature (readily identifiable from the air) or a known point (artillery fire, etc.).
- Direction to target from reference point (in meters).
- Reference to friendly fire--GL, tracers, smoke streamers, mortars, artillery, forward air control (FAC) marking rockets.

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METHOD OF ADJUSTMENT

Impact (observed/sound) or observer target.

- When the adjustment is 50 meters or less, transmit the adjustment and FIRE FOR EFFECT.
- When attack helicopters support a ground force, the preferred method of adjustment is impact.

BY IMPACT OBSERVED

For this, the observer estimates the direction using a cardinal heading to locate the target and a distance (in meters) from the point of impact to the target, e.g.,

Observer: ADJUST FIRE, IMPACT OBSERVED, OVER.

Fire Team: IMPACT OBSERVED, OUT. (Fire one pair.)

Observer: NORTHWEST 75, OVER.

Fire Team: ROGER, OUT (fires one pair).

Observer: NORTH 30, FIRE FOR EFFECT, OVER.

Fire Team: ROGER, OUT (fire team is committed against targets).

Observer: END OF MISSION, TARGET SUPPRESSED (DESTROYED), OVER.

Fire Team: END OF MISSION, OUT.

If the impact is not seen, the observer transmits:

Observer: UNOBSERVED, OVER.

Fire Team: UNOBSERVED, OVER. (Fire one pair.)

The adjustment continues until mission completed.

BY IMPACT SOUND

In a situation where the ground observer can't see the point of impact, he may adjust by sound. In this case, the observer must transmit: ADJUST FIRE, IMPACT SOUND, OVER. This technique is identical to that used in the impact (observed) method. They differ in that the observer senses the direction of the sound rather than seeing the point of impact and converts this into a correction.

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NOTE:

The observer-target method of adjustment may be used if the situation precludes the use of the impact method.

OBSERVER-TARGET METHOD OF ADJUSTMENT.

Although impact observed is the preferred method for adjustment of attack helicopters, the observer-target method (less desirable) may be used. When using the observer-target method, your location must be marked. This may compromise your location. Sense the direction (left, right) and distance (in meters) from the impact to a point on the OT line. Then sense the position (long, short) of the OT line relative to the target and the distance (in meters) from the point to the target along the OT line. The sensing must be converted to corrections (right, left; drop, add, respectively) and transmitted. The chance of error is increased with this method.

An example of this method of adjustment is--

Observer: LEFT 50, ADD 100, FIRE FOR EFFECT, OVER.

Fire Team: ROGER, OUT (fire team is committed against target).

(When target has been suppressed/destroyed.)

Observer: END OF MISSION, MACHINEGUN SUPPRESSED (DESTROYED) OVER.

Fire Team: END OF MISSION, OUT.

Unobserved rounds are handled in the same way as in the impact method.

EMPLOYING USAF TACTICAL AIRCRAFT

When you are supported by fighter aircraft, you talk to a forward air controller (FAC) who, in turn, talks to the pilots. The FAC can be in an aircraft, but he normally will be operating on the ground. In most cases, the FAC will come forward to a point from which he can see the target. Once he has the target in sight, he can adjust the aircraft onto the target. If he can't see, you will have to tell him how it can be identified. You must also make sure that he knows where all friendly elements close to the target are located. Several methods can be used to pinpoint targets. Members of the FIST are trained to direct CAS aircraft.

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Geographical landmarks or terrain features, clearly visible from the air, can help in target identification when used with another location method. Streams, roads, bridges, tree lines, cultivated areas, prominent hills, etc., help narrow the area the pilot has to search, e.g., "in the tree line on the north side of a big square wheat field."

Reference points are the most common aid to the visual location of a target. The pilot's eyes are led to the reference point and from it to the target, sometimes through a series of decreasingly obvious reference points. It is much harder for a pilot to find a target than to keep that target in sight. Any reference point must stand out or contrast with its surroundings.

Friendly positions, when clearly recognizable from the air, may be used as day or night reference points for locating close-in targets.

Smoke rounds from mortars, artillery, and grenade launchers are the primary target marks. White phosphorus (WP) is usually best because the smoke cloud blossoms quickly and is highly visible.

Ordnance already impacting on the ground may be, or may create, an adequate reference point.

Illumination rounds are good reference points for guiding strike aircraft to the target vicinity at night, but they will NOT pinpoint a small target if the flares function at the normal height.

Tracer fire can be used to mark a target at night. The target is at the intersection of two streams of tracers or at the impact point of a single stream.

Grass fires or other fires near a target may sometimes be used as night references.

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MARKING FRIENDLY POSITIONS

Friendly positions should always be marked during close airstrikes, if there is no danger of compromise to enemy observers. It may suffice to say "all friendlies are south of the target, nearest are 500 meters." As a rule, a mark is usually necessary when friendly troops are closer to the target than 300 meters. Marks may be overt or covert. Any marking method that can be seen or heard by the enemy is overt.

The smoke grenade is the most commonly used overt mark. It is usually available and can be used quickly, but it has limitations. Some colors blend with the ground background. Red or white is fair to good with most backgrounds. Wind may cause smoke to appear above trees at a considerable distance from its source.

Flares (handheld rocket, Very pistol, 40-mm, and pengun) are good attention getters at night and are sometimes usable during the day.

Fire of many types is useful as a signal if it is distinguishable from other fire.

Signal mirrors are probably the best ground-to-air attention devices, if there is sunshine and if the operator is proficient. A pilot can see a mirror flash from many miles.

Signal panels (VS-17) are good covert visual references.

Balloons have been used occasionally as a covert signal above a thick forest canopy.

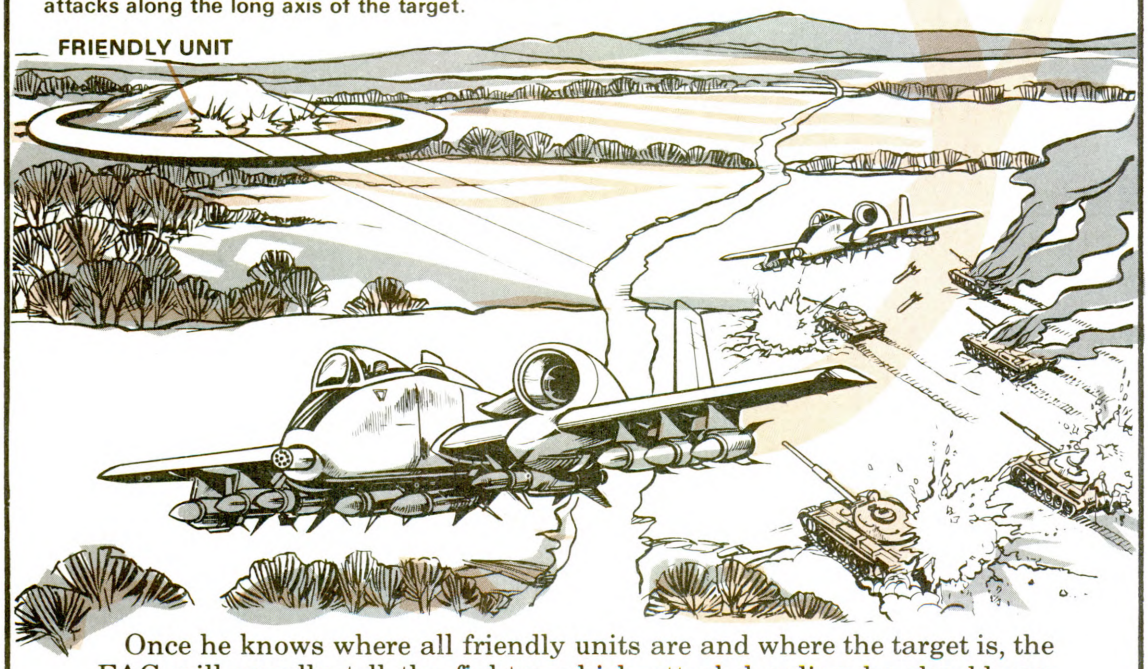
Strobe lights are pocket-sized, battery-powered signal lights which produce brilliant white flashes at about one and one-half second intervals. The flash is visible at night for 1 to 3 miles.

Vehicle lights such as an unshielded red taillight are visible to a pilot at night for several miles.

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ATTACK HEADING SELECTION

A fighter aircraft is more likely to destroy its target if it attacks along the long axis of the target.



Once he knows where all friendly units are and where the target is, the FAC will usually tell the fighter which attack heading he should use. However, if the FAC cannot see, you will have to make this decision. When you do, remember that: FIGHTERS SHOULD NOT ATTACK ACROSS FRIENDLY POSITIONS.

FRIENDLY POSITIONS

- An attack toward friendly units is undesirable because of possible ricochets and bomb release system malfunctions.

- An attack from behind and over friendly lines is also undesirable for several reasons. Some fighters dump empty cartridges overboard as they strafe. An empty 20-mm case weighs one-fourth of a pound and hits the ground at 100 miles per hour. A more catastrophic hazard would be an early bomb release. Pilots repeatedly select and arm weapon systems while in the attack pattern. An electrical malfunction could cause bomb release any time a switch is repositioned.

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APPENDIX O
TRAINING THE PLATOON

TRAINING

Teamwork, developed through many hours of hard intensive training, is a factor which distinguishes a successful platoon or squad from an unsuccessful one.

Training a platoon or squad is like training a football team. Each man, team, and squad must perform tasks requiring specific skills to either reach his team's goal or to keep the opponent from reaching his. Think of yourself, the leader, as being both the quarterback and the coach. When you give an order on the battlefield, men must respond to your order just as they would to a quarterback when he gives the signal for the snap of the ball.

Make sure that each man is prepared to do his part. Each soldier must not only be proficient in his combat skills, but also be in top physical condition and proficient with his weapon, in order to be a contributor to his team.

Know the level of training of your platoon or squad, and then plan to train to reach a specific standard. There may be little time, so use it wisely.

The battalion commander determines what missions and tasks the battalion and its subordinate elements can accomplish. He determines where the unit should be and determines unit training goals based on goals dictated by higher headquarters in the form of annual training objectives. The battalion commander then gives broad guidance and direction on how to attain these goals. He is aware of those missions that the unit has accomplished and

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normally provides that guidance for accomplishing missions that the unit(s) has not attained. For example, a company has demonstrated the ability to conduct a movement to contact, hasty attack, and deliberate attack but has not satisfactorily demonstrated the ability to conduct an active defense. His guidance to the company commander may be, "Company C, during this training cycle, you concentrate on the active defense, Company A and Company B, your units need work on the deliberate attack; insure maximum efforts are made in those areas during this next training quarter."

The company commanders review their platoons' capabilities using ARTEP evaluation criteria to determine what specific areas each platoon will have to concentrate their efforts on. It may well be that the Company A platoons are able to satisfactorily accomplish some tasks concerning the active defense but they still need training in other tasks. Normally, different platoons can accomplish different tasks. It becomes the platoon leader's job to train to accomplish those specific tasks that the company commander has specified for each platoon. For example, the 1st platoon has demonstrated the ability to reconnoiter battle positions, and establish security but has not demonstrated the ability to prepare fighting positions. The 2d platoon has demonstrated the ability to establish security and prepare fighting positions but has not demonstrated the ability to prepare a coordinated fire plan. The Company A commander's training guidance may well be, "During this next training period, the company will concentrate on how to conduct the active defense. First platoon leader, you place emphasis on preparing fighting positions; 2d platoon leader, you place emphasis on preparing coordinated fire plans. We are using ARTEP standards. I will coordinate with the S3 for training areas and other required support."

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The 1st platoon leader knows that the 1st squad is able to emplace minefields but has not demonstrated the ability to prepare range cards, whereas, the 2d and 3d squads are able to prepare fighting positions and prepare range cards but have not demonstrated the ability to emplace minefields satisfactorily. In coordination with the platoon sergeant, the platoon leader now orders: "1st squad leader, you prepare to give additional training on preparing range cards to your squad Wednesday, at 1500 hours, and 2d and 3d squad leaders, you prepare to give additional training on minefield emplacement at 1400 hours on Thursday."

The training effort has been reviewed, weak areas identified, and specific guidance given to overcome these weaknesses. The entire chain of command is involved and a coordinated effort will be made based on each level of leadership being cognizant of the training status of his element.

AIDS TO TRAINING

SKILL QUALIFICATION TESTS SQT/SOLDIER'S MANUALS (SM).

These tests tell you if a soldier is qualified to perform in his MOS. Use them to determine standards that your troops should meet. If they do not meet these standards, use the Soldier's Manuals for extra training to bring them up to standards.

TRAINING EXTENSION COURSE (TEC).

These are self-study lessons on individual skills. They will help you keep your soldiers' proficiency up to standard. Get these through your training NCO or training officer.

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TRAINING CIRCULARS (TC).

TCs are written by service schools. They will keep you informed of latest tactical doctrine and training techniques. Appendix P lists several TCs that pertain to mechanized infantry platoons and squads. If they are not available, order them through your training officer or NCO.

FIELD MANUALS (FM).

Field manuals cover subjects essential to you. Special field manuals that have been written to tell leaders how to fight are called "How to Fight" manuals. FM 71-1, The Tank and Mechanized Infantry Company Team, will be of particular interest to you as well as FM 71-2, The Tank and Mechanized Infantry Battalion Task Force.

TECHNICAL MANUALS (TM).

These manuals are equipment-oriented. They will help you maintain your weapons, vehicles, and equipment.

ARMY TRAINING AND EVALUATION PROGRAM (ARTEP).

These programs describe the tasks, conditions, and the standards that platoons and squads must attain in order to be combat ready. It is designed to:

- **Specify training objectives, by prescribing standards of performance for combat critical tasks.**
- **Provide an assessment of future training needs.**

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To use the ARTEP for preparing and conducting training, you must first know the tasks required of your platoon in combat. The ARTEP prescribes these tasks in the form of training objectives. A training objective has three parts:

- **The *TASK* to be performed.**
- **The *CONDITIONS* under which the task is performed.**
- **The *STANDARDS* of performance (how well the soldiers must perform the task).**

The following example of a training objective is taken from ARTEP 7-45 for a mechanized rifle platoon for skill level 3.

- ***TASK* - Use proper movement techniques.**
- ***CONDITIONS* - In daylight, under the following conditions:**

Platoon leader is given a company commander's oral frag order which provides--

- **Enemy and friendly situation.**
- **The platoon's mission.**
- **Other information (e.g., axis of advance, command and signal, etc.).**

- **Platoon troops carry TOE weapons and equipment.**
- **Enemy and friendly troops use blank ammunition and practice hand grenades.**

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- **Indirect fire is available on request.**

STANDARDS - Platoon moves mounted initially. It uses traveling when contact is not likely, traveling overwatch when contact is possible, and bounding overwatch when contact is expected. The platoon's execution of these movement techniques optimizes the use of terrain to minimize its exposure and to maximize its ability to shoot from the best available overwatch positions.

These training objectives, from the ARTEP, are important to you because:

THEY ARE A BASIS FOR YOUR TRAINING.

THEY TELL YOU WHAT YOUR SQUAD WILL BE EXPECTED TO DO IN COMBAT.

Before training your platoon, become familiar with all platoon and squad tasks in the ARTEP for your type of infantry battalion. They will be listed according to the level of training your unit has attained. This will be level 1, 2, or 3.

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TACTICAL TRAINING TECHNIQUES

TERRAIN MODEL.

Terrain models are good for introducing or demonstrating tactical techniques. The models are simple, easy to build, and take only a few minutes to prepare using local material. To prepare a terrain model exercise, consider the training objectives, and visualize a tactical situation which will require the platoon to apply the techniques which will accomplish the training objectives. Draw a sketch of that situation and use it to design the terrain model.

Terrain models can be used both indoors and outdoors and can vary from a temporary diagram drawn in the dirt with a stick to more elaborate and permanent models. A temporary model can be built in about 10 minutes using the ground. Use a stick to draw lines on the ground to mark the boundaries of the sketch. Get a few shovelfuls of dirt to build hills and high ground. Roads and trails can be traced in loose soil and sand. Rivers and streams can be scratched out with a stick, and handfuls of grass, pine cones, etc., make excellent forest. Use rocks to represent soldiers or weapons. Do not worry about showing great detail or making everything to scale. Rough approximations are adequate.

A terrain model can also be made inside the barracks in bad weather using a blanket, shelter half, or burlap sacks to represent the terrain. Use strips of tape or cloth to indicate rivers, trails, or roads. Rocks or cans can represent landmarks or enemy positions. Blankets, socks, or newspapers can be crumpled and placed under the terrain cloth to shape hills.

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If bad weather is a frequent threat to outdoor training, consider constructing a permament indoor terrain model. There is no standard size of terrain models; a typical size is 4 feet square. It requires about two sandbags full of sand. Make a tray by nailing a piece of wallboard or plywood to a frame made from strips of wood. Sand may be arranged to represent terrain features and colored powder used to represent other features, such as roads, trails, rivers, etc.

TACTICAL DRILLS.

These drills develop teamwork. Platoons and squads should go through them with the same precision as a well executed football play. They can be conducted almost anywhere, are easy to prepare, and need last only 30 to 40 minutes. Examples of offensive tactical drills are: clearing obstacles, minefields, buildings, and trenchlines; and dismounting from APCs.

Introduce your drill with an explanation of the purpose of the drill.

Next, demonstrate the technique to be covered. A terrain model may be used for demonstration. Point out the locations and actions of each member of the team and see that all men understand the standards associated with the drill. After the demonstration, answer questions.

The unit then executes the drill under supervision until it is mastered.

Troops should be talked through the drill by-the-numbers. During this part of the exercise, leaders act as assistant instructors, so they should be instructed earlier on their part in the exercise. In this part of the drill, you should move from squad to squad to supervise.

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When they have mastered the technique on open terrain, move to more realistic terrain. During this part of the drill, the assistant instructors should stop the drill if they see anything being done improperly. Errors should be corrected and the drill continued or started again by the evaluator.

WALK-THROUGH.

The walk-through is a simulated operation done at a walking pace. Each leader takes his unit through the various aspects of an attack, defense, or other operation. Leaders and troops discuss the situations and actions as they walk.

FIELD EXERCISE.

Only by the continuous practice of techniques and fundamentals, such as movement techniques, fighting-through, attacks, defense, and retrograde will the soldiers completely grasp what is expected of them. The other training methods already discussed are only building blocks which prepare the soldier for the actual hands-on training of field exercises which should simulate combat conditions. Always conclude a field exercise with a critique.

A critique discusses the good and bad points of the exercise. It includes both proper application of tactical principles and contructive criticism for failure to apply those principles. If the phase of training represented by the exercise is completed satisfactorily, that fact should be stated. Deficiencies are noted and corrective measures taken.

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NOTES

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FM 7-7

30 SEPTEMBER 1977

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

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Additional copies can be requisitioned (DA Form 17) from the US Army Adjutant General Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.

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APPENDIX P

REFERENCES

FM 3-220	Chemical, Biological, and Radiological (CBR) Decontamination
FM 5-20	Camouflage
FM 6-135	Adjustment of Artillery Fire by the Combat Soldier
FM 7-11B1	Soldier's Manual for Light Weapons
FM 7-11B2	Soldier's Manual for Light Weapons
FM 7-11B3	Soldier's Manual for Light Weapons
FM 7-11B4	Soldier's Manual for Light Weapons
FM 7-11C1	Soldier's Manual for Indirect Fire Weapons
FM 7-11C2	Soldier's Manual for Indirect Fire Weapons
FM 7-11C3	Soldier's Manual for Indirect Fire Weapons
FM 7-11C4	Soldier's Manual for Indirect Fire Weapons
FM 20-22	Vehicle Recovery Operations
FM 20-32	Landmine Warfare
FM 21-6	How to Prepare and Conduct Military Training
FM 21-41	Soldier's Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare
FM 21-60	Visual Signals
FM 21-74 (TBP)	Patrolling
FM 21-75 (TBP)	Combat Skills of the Soldier
FM 23-9	M16A1 Rifle and Rifle Marksmanship
FM 23-11	90-mm Recoilless Rifle, M67
FM 23-12	Technique of Fire of the Rifle Squad and Tactical Application
FM 23-23	Antipersonnel Mines M18A1 and M18 (Claymore)
FM 23-30	Grenades and Pyrotechnic Signals
FM 23-31	40-mm Grenade Launchers M203 and M79
FM 23-33	66-mm Heat Rocket M72A1, M72A2, and M72
FM 23-65	Browning Machinegun Caliber .50 HB, M2
FM 23-67	Machinegun Cal 7.62-mm, M60
FM 30-40	Handbook on Soviet Ground Forces
FM 71-1	The Tank/Mechanized Infantry Team
FM 71-2	The Tank/Mechanized Infantry Battalion Task Force
FM 90-4 (TBP)	Desert Operations
FM 90-3 (TBP)	Air Assault Operations
FM 90-5 (TBP)	Jungle Operations
FM 90-6 (TBP)	Mountain Operations
FM 90-7 (TBP)	Denial Operations and Barriers
FM 90-10 (TBP)	Military Operations in Built-Up Areas
FM 90-11 (TBP)	Northern Operations
FM 90-13 (TBP)	River Crossing Operations
TC 6-40-4	Fire For Effect
TC 7-1	The Rifle Squads (Mechanized and Light Infantry)
TC 23-2	66-mm Rocket Launcher, M202A1
TC 23-24	Dragon Medium Antitank Assault Weapon System, M47
TC 23-24-1	Firing the Dragon From the M113
TC 23-999C (TBP)	Night Vision Devices
TC 30-3	Soviet Equipment Recognition Guide
TC 30-102	The Motorized Rifle Company
ARTEP 71-2	Combined Arms Task Force

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